

DRAFT
ARCHAEOLOGICAL SURVEY REPORT
for the
PROPOSED SOUTH ORANGE COUNTY TRANSPORTATION
INFRASTRUCTURE IMPROVEMENT PROJECT
in
ORANGE AND SAN DIEGO COUNTIES, CALIFORNIA

LSA Associates, Inc. Project Number PND130

Prepared by:

Phil Fulton, B.A.

Brooks Smith, B.S.

Ivan Strudwick, M.A., RPA

Terri Fulton, B.A.

Roderic McLean, M.A., RPA

LSA Associates, Inc.

20 Executive Park, Suite 200

Irvine, CA 92614

Submitted to:

Stephanie Stoermer

Archaeologist/Senior Environmental Protection

Specialist

Federal Highway Administration, California Division

650 Capitol Mall, Suite 4-100

Sacramento, CA 95814-4708

U.S.G.S. Topographic Quadrangles: *Cañada Gobernadora* 1968 (PR 1988); *San Clemente* 1968 (PR 1975)

Approximately 2,954 acres

Resources: CA-ORA-22/CA-SDI-13071, CA-ORA-362, CA-ORA-363, CA-ORA-653, CA-ORA-657, CA-ORA-658, CA-ORA-912, CA-ORA-913, CA-ORA-914, CA-ORA-915, CA-ORA-916, CA-ORA-917, CA-ORA-920, CA-ORA-921/1127, CA-ORA-1028, CA-ORA-1106, CA-ORA-1168, CA-ORA-1175, CA-ORA-1559, CA-ORA-1560, CA-ORA-1561, CA-SDI-1074, CA-SDI-1075, CA-SDI-4282, CA-SDI-4412, CA-SDI-4535, CA-SDI-6692, CA-SDI-8435, CA-SDI-11703, CA-SDI-11929, CA-SDI-13324, CA-SDI-13325, CA-SDI-17544, CA-SDI-17545, 37-026809, 37-026820, 37-026821, 37-026823, 37-026824, 37-026825, 37-026826, 37-026827

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CHAPTER I: SUMMARY OF FINDINGS

The current study involves a portion of the overall South Orange County Transportation Infrastructure Improvements Project (SOCTIIP). The SOCTIIP proposes undertaking construction of transportation improvements in southern Orange County and northern San Diego County. This study is concerned with the proposed southern extension of the existing State Route 241 (SR-241) from its current terminus in southern Orange County to Interstate 5 in northern San Diego County. The most current preferred alignment is known as the Modified Green Alternative (MGA). The lead agency for this project is the Federal Highway Administration (FHWA). As the project is a federal undertaking, it falls under the requirements of Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended and as promulgated by 36 CFR 800.

This report involved synthesizing the results of several large-scale individual studies completed since 2000 that covered portions of the project. Surveys completed by Greenwood and Associates (G and A 2003) covering SOCTIIP alignments and Archaeological Resources Management Corporation (ARMC) (Demcak 2000) covering most of the land within Rancho Mission Viejo (RMV) are summarized. LSA Associates, Inc. (LSA) completed a Phase I reconnaissance survey of approximately 801 acres (ac) within the Donna O'Neill Land Conservancy (Conservancy) in southern Orange County, California. The study area extended from the centerlines of the then-proposed alignments to either the Conservancy boundary or one-quarter mile, whichever was closest. While the Conservancy boundary extends slightly east of Cristianitos Road, the survey area was confined to the west side of Cristianitos Road. LSA completed a Phase 1 reconnaissance survey of 912 ac within the Camp Joseph H. Pendleton Marine Corps Base (Camp Pendleton) portion of the project within northern San Diego County and a small portion of Orange County (Fulton et. al. 2005). The southern terminus of the Camp Pendleton segment is Interstate 5 (I-5), and the northern terminus is located approximately 4.5 miles to the north, where the Orange County/San Diego County line begins to run west to east. The study area covered the preferred alignment's area of potential effects (APE). The APE includes the area of direct impacts (ADI) plus a 300-foot buffer surrounding the ADI. The area covered by the National Register-eligible San Mateo Archaeological District (SMAD) and the area directly impacted by the current alignment of I-5 were not surveyed.

The purpose of the studies conducted by G and A and ARMC was to identify all cultural resources greater than 45 years of age that might be within their respective study areas. The purpose of the LSA studies was to identify all cultural resources greater than 45 years of age, which might be within the APE of the proposed SOCTIIP alignments that were not covered by either the G and A or ARMC surveys.

The ARMC survey resulted in the discovery of 19 new prehistoric sites, 5 historic sites, and 2 isolates. Of these, three sites (CA-ORA-1559, CA-ORA-1560, and CA-ORA-1561) are within the current APE of the MGA (Demcak 2000a).

The G and A survey documented no new archaeological sites; however, four isolated prehistoric artifacts consisting of flaked and ground stone artifacts were recorded (G and A 2003), and one of these (SOCTIIP 2001 iso #1) is within the current MGA project area.

The survey of the Donna O'Neill Land Conservancy conducted by LSA identified one previously unrecorded archaeological site (CA-ORA-1640) and eight previously unrecorded prehistoric isolates (30-100361 through 8) within the survey area. In addition, eight previously recorded sites within the survey area were relocated during the survey (CA-ORA-912, CA-ORA-917, CA-ORA-920, CA-ORA-1021, CA-ORA-1023/1024, CA-ORA-1028, CA-ORA-1180, and CA-ORA-1188). Three previously recorded isolates and three previously recorded sites were not relocated during the current survey (30-100091, 30-100092, 30-100098, CA-ORA-1186, CA-ORA-1187, and CA-ORA-1189). The sites are all prehistoric artifact or lithic scatters containing small numbers of flaked and/or groundstone tools, while the isolates are single flakes or cores. Only three previously recorded sites (CA-ORA-912, CA-ORA-917, and CA-ORA-920) are within the MGA or the 300-foot buffer area. Of the new resources discovered during this survey, four of them (30-100364, 30-100366, 30-100367, and 30-100368) are within the MGA, or 300-foot buffer.

The Camp Pendleton survey documented 19 new cultural resources, nine of which are prehistoric isolates of one or two items (30-100360 and 37-026828 through 37-026835). Six of the resources are extant structures or objects such as power poles, culverts, and bridges (37-026809, 37-026820, 37-026823, 37-026824, 37-026825 and 37-026826). CA-SDI-17544 is a large prehistoric artifact scatter along with a concrete foundation and associated trash. CA-SDI-17545 is a lithic scatter, 37-026821 is an historic well with standpipes, and 37-026827 is a military training area. All but six (37-026823, 37-026828, 37-026829, 37-026834, and 37-026835 and CA-SDI-17545) of the 19 resources are located within the MGA or 300-foot buffer. These six resources were identified while the field crew was accessing the project.

Six previously recorded sites are plotted within or adjacent to the Camp Pendleton study area (CA-SDI-1074, CA-SDI-1075, CA-SDI-4412, CA-SDI-6692, CA-SDI-13324, and CA-SDI-13325). Sites CA-SDI-1074 and -1075 appear to have been destroyed within the survey area, but may still exist outside the area surveyed. CA-SDI-6692 could not be relocated. LSA did not attempt to relocate CA-SDI-13324 during the survey, as at the time of the survey it was not impacted by any proposed alignments. The new MGA, however, does impact this site. CA-SDI-4412 and CA-SDI-13325 were relocated. LSA did not survey the portion of the MGA within Camp Pendleton that includes the National Register-eligible SMAD, as it has been covered extensively by previous studies. The SMAD includes archaeological sites CA-ORA-22/CA-SDI-13071, CA-SDI-4282, CA-SDI-4535, CA-SDI-8435, CA-SDI-11703, and CA-SDI-11929.

The primary constraint for all field studies was ground visibility and steep terrain. The majority of the area through which the SOCTIP alignment passes is characterized by ridges, steep slopes, knolls, and canyons that are covered by a mantle of very dense vegetation. Access was often limited to disturbed areas such as roads and trails, which provided excellent ground visibility.

Overall, 32 previously recorded archaeological sites have been identified as lying either within the MGA alignment or within 300 feet (ft) of the alignment. These sites include 24 sites (CA-ORA-0022/CA-SDI-13071, CA-ORA-0362, CA-ORA-0363, CA-ORA-0653, CA-ORA-0657, CA-ORA-0912, CA-ORA-0913, CA-ORA-0914, CA-ORA-0915, CA-ORA-0916, CA-ORA-0917, CA-ORA-

0921/1127, CA-ORA-1028, CA-ORA-1106, CA-ORA-1559, CA-ORA-1560, CA-SDI-01074, CA-SDI-01075, CA-SDI-04282, CA-SDI-04535, CA-SDI-08435, CA-SDI-11929, CA-SDI-13324, and CA-SDI-13325) within the MGA, and eight sites (CA-ORA-0658, CA-ORA-0920, CA-ORA-1168, CA-ORA-1175, CA-ORA-1561, CA-SDI-04412, CA-SDI-06692, and CA-SDI-11703) within the 300-foot buffer. Additionally, nine cultural resources, two within the MGA (CA-SDI-17544, and 37-026820) and seven within the 300-foot buffer (37-026809, 37-026821, 37-026823, 37-026824, 37-026825, 37-026826, and 37-026827), were identified by LSA through surveys performed during preparation of the ASR and Historical Resources Evaluation Report (HRER). However, only CA-SDI-17544, 37-026821 and 37-026827 are archaeological sites; the rest are built environment sites, such as bridges, culverts, and power poles, and are discussed in greater detail in the HRER.

Prior to the MGA being selected as the preferred alignment, there were numerous proposed alternatives to improve traffic flow in the area. Some alignments followed similar paths along portions of their alignment and some followed a similar alignment to the preferred MGA. The most recent proposed alignments included: Alignment 7 Corridor-Far East Crossover-Modified (A7C-FEC-M), Alignment 7 Corridor-Avenida La Pata Variation (A7C-APLV), Far East Corridor-West (FEC-W), Far East Corridor-Modified (FEC-M), Central Corridor (CC), Central Corridor-Avenida La Pata Variation (CC-APLV), Arterial Improvements (AIO), I-5 Widening (I-5), and the CP and BX alignments. Not including the portions of these alignments that impact the same sites as the MGA, there are at least 75 archaeological sites that were within the ADI, plus the 300 ft buffer.

It is the policy of the California Department of Transportation (Caltrans) to avoid cultural resources whenever possible. Further investigations may be needed if the sites cannot be avoided by the project. If buried cultural materials are encountered during construction, it is Caltrans policy that work stop in that area until a qualified archaeologist can evaluate the nature and significance of the find. Additional survey will be required if the project changes to include areas not previously surveyed.

CHAPTER II: INTRODUCTION

The SOCTIIP proposes construction of transportation improvements in southern Orange County and northern San Diego County. Over the years the SOCTIIP has had many different proposed alternatives; however, there is currently only one preferred alignment, known as the MGA. The proposed project consists of extending SR-241 in southern Orange County south to I-5 in northern San Diego County. The location of the project is depicted on Map 1, Study Vicinity Map, and Map 2, Study Location Map.

The current report is the synthesis of four individual studies that include segments of the overall SOCTIIP. Between March 13 and June 1, 2000, ARMC conducted a pedestrian survey of most of the land within the boundaries of the 25,000-ac RMV property during a study documenting the archaeological resources within the Ranch (Demcak 2000a). Between April 16, 2000, and May 8, 2001, G and A performed a pedestrian survey of the SOCTIIP alignments that were proposed at the time of the study and during preparation of the Phase I Archaeological Inventory for the SOCTIIP (G and A 2003). LSA performed pedestrian surveys of the those portions of the alignments that traversed the Conservancy in southern Orange County between June 7 and 11, 2004, and within the boundaries of Camp Pendleton in northern San Diego County between March 17 and 23, 2005. The area covered by each of these four surveys is depicted on Map 3, Survey Coverage.

According to the reports prepared by ARMC and G and A, individuals with many years of experience in southern California archaeology completed their surveys. In addition, some of the surveyors hold upper-level degrees in the field of Anthropology (Demcak 2000a and G and A 2003)

In June 2004, LSA archaeologists conducted a reconnaissance survey of a segment of SOCTIIP's proposed extension of SR-241 through portions of the Conservancy. At that time there were three proposed alignments (FEC-M; FEC-W; and the A7C-FEC-M) through the Conservancy that were surveyed. The A7C-FEC-M and FEC-W followed the same alignment as the currently preferred MGA. The study area included the area on either side of the proposed alignment centerline either to the edge of the Conservancy or one-quarter mile, whichever was smaller. The survey crew consisted of Terri Fulton (Field Director), Phil Fulton, Brooks Smith, Shannon Carmack, and William Sawyer. Rod McLean was the Principal Investigator.

In March 2005, LSA conducted a reconnaissance survey of the three proposed alignments (FEC-M, FEC-W, and the A7C-FEC-M) that traverse Camp Pendleton in northern San Diego County, plus a 300-foot buffer (Fulton et al. 2005). All three alignments follow a common route through this portion of the project and include a common or larger area than the current preferred MGA (Fulton et al. 2005). The survey crew consisted of Field Director Phil Fulton, Brooks Smith, Rod McLean, and Chris Roberts. Rod McLean was the Principal Investigator. Qualifications for LSA personnel from both studies are as follows:

- Rod McLean, M.A. Anthropology, 25 years archaeological experience in California and the western United States.

- Terri P. Fulton, B.A. Anthropology, 22 years archaeological experience in California and the western United States.
- Phil Fulton, B.A. Environmental Studies, 19 years archaeological experience in California and the western United States.
- Brooks Smith, B.S. Geology, 13 years archaeological experience in California.
- Chris Roberts, B.A. Anthropology, 8 years archaeological experience in California.
- Shannon Carmack, B.A. History, in progress, 6 years archaeological experience in California.
- William Sawyer, M.A. Anthropology, 25 years archaeological experience in California.

CHAPTER III: HIGHWAY PROJECT LOCATION AND DESCRIPTION

The project is located in Caltrans' Districts 11 and 12, within San Diego and Orange Counties, respectively. This study is concerned with the proposed southern extension of State Route 241 (SR-241) from its current terminus at Oso Parkway near the community of Coto de Caza in southern Orange County to Interstate 5 in northern San Diego County just south of the City of San Clemente in Orange County (Map 1). The purpose of this project is to help improve traffic flow in the area by offering an alternative route, thus relieving congestion both on existing freeways as well as surface streets

Although numerous alignments have been proposed over the years, only one is now considered as the preferred alignment, the MGA. The APE is defined as the disturbance limits for the MGA ADI, plus a 300-foot buffer outside the ADI. The total acreage of the ADI is 1,187 ac (480 hectares [ha]), while the acreage for the APE is 2,620 ac (1,060 ha). The MGA alignment primarily passes through undeveloped land, the majority of which is located within Rancho Mission Viejo or Camp Pendleton. It is located near several existing communities, including Coto de Caza and Rancho Santa Margarita in the north and San Clemente in the south.

The initial phase of the project proposes two lanes in each direction, which may expand to three lanes, plus a carpool lane in each direction in the ultimate phase. Based on the underlying topography, the width of the area impacted by the footprint of the road will vary between approximately 600 to just over 1,200 ft (180 meters [m] to just over 365 m) (see Map 2). Because of the steep terrain through which much of the alignment passes, it is anticipated that there will be vertical excavation of hills and filling of canyons in excess of 100 ft (30 m) to construct a road bed with a more even gradient. Improvements will also be made to the I-5 interchange that include widening the freeway to construct connector roads. The I-5 improvements will occur in the area from 0.6 to 1.4 miles south of Basilone Road. In addition, other connector roads will be built to connect the MGA to several of the existing roads that it intersects. As such, large amounts of dirt will be excavated and moved during the course of this project, and it is anticipated that historic properties will invariably be affected. Although this study has identified 39 archaeological sites within the MGA and 300-foot buffer, not including isolates, it is highly likely that additional resources will be uncovered during the course of the project that were obscured by vegetation or sediment.

CHAPTER IV: SOURCES CONSULTED

LSA obtained copies of all archaeological site records and reports that were within one-quarter mile of both sides of the proposed alignment. These copies were obtained through a database compiled by G and A during their preparation of the SOCTIIP Archaeological inventory (G and A 2003), records maintained at the South Central Coastal Information Center, and records in the possession of the Base Archaeologist at Camp Pendleton. LSA also obtained copies of all reports that have been prepared within one-half mile of the centerline of the alignment from the same sources noted above. In addition, LSA researched the Archaeological Determinations of Eligibility database for information on the National Register eligibility of sites in the area. LSA obtained a copy of a letter from the California State Historic Preservation Officer (SHPO) to the United States Army Corps of Engineers (Corps) concerning its concurrence on the National Register eligibility of archaeological sites within the San Juan Creek Watershed and San Mateo Creek Watershed Special Area Management Plan, dated January 2004 (SHPO 2004).

LSA also obtained copies of two large-scale survey reports that have been prepared since 2000 and cover areas through which the project passes: (1) *South Orange County Transportation Infrastructure Improvement Project Phase I Archaeological Inventory*, prepared by Greenwood and Associates (G and A 2003), and (2) *Report of Archaeological Resources Survey for Rancho Mission Viejo Project 2000, Rancho Mission Viejo, South Orange County California*, prepared by ARMC (Demcak 2000a). LSA also obtained copies of all survey reports that had been performed within the boundaries of Camp Pendleton that were within 300 ft of the proposed alignment to assist in LSA's survey of the area.

The results of the record search indicated that the entire project area had been previously surveyed except for the majority of the portions of the project that pass through land within the Conservancy and land within Camp Pendleton. As part of the preparation of this ASR, all areas that lacked survey coverage within the Conservancy and Camp Pendleton were surveyed by LSA.

The results of the records search indicate that there are 32 previously recorded archaeological sites either within the MGA or the 300-foot buffer around the MGA. These include: CA-ORA-22/CA-SDI-13071, CA-ORA-362, CA-ORA-363, CA-ORA-653, CA-ORA-657, CA-ORA-658, CA-ORA-912, CA-ORA-913, CA-ORA-914, CA-ORA-915, CA-ORA-916, CA-ORA-917, CA-ORA-920, CA-ORA-921/1127, CA-ORA-1028, CA-ORA-1106, CA-ORA-1168, CA-ORA-1175, CA-ORA-1559, CA-ORA-1560, CA-ORA-1561, CA-SDI-1074, CA-SDI-1075, CA-SDI-4282, CA-SDI-4412, CA-SDI-4535, CA-SDI-6692, CA-SDI-8435, CA-SDI-11703, CA-SDI-11929, CA-SDI-13324, and CA-SDI-13325.

In addition, LSA discovered nine additional historic resources, not including isolates, either within the MGA or the 300-foot buffer during new surveys associated with the preparation of this ASR. These include: three archaeological sites (CA-SDI-17544, 37-026821, and 37-026827) and six built environment sites (37-026809, 37-026820, 37-026823, 37-026824, 37-026825, and 37-026826). LSA also discovered nine isolates containing two or fewer artifacts lying within the MGA or the 300-foot buffer during new surveys associated with the preparation of this ASR. Each of the archaeological sites

is briefly described below and in more detail in Chapter VII; the built environment sites discovered by LSA are described in the HPSR. In addition, the site records for each resource are attached in the “Site Records.”

- **CA-ORA-362** is a scatter of flaked and groundstone artifacts within a 173 m north/south by 77 m east/west area with a depth up to 40 centimeters (cm) below the surface.
- **CA-ORA-363** is a temporary use site containing flaked stone artifacts in a 160 m north/south by 80 m east/west area with a depth up to 60 cm below the surface.
- **CA-ORA-653** contains flakes and a single mano within an area estimated at 200 x 300 ft with no apparent subsurface component. There is SHPO concurrence that the site is not eligible for listing in the National Register (SHPO 2004).
- **CA-ORA-657** is a small lithic scatter containing a single core tool and a single flake. The size was listed as 15 ft x 20 ft at an elevation of 420 ft. It was interpreted as an occasional use site. There is SHPO concurrence that the site is not eligible for listing in the National Register (SHPO 2004).
- **CA-ORA-658** contains a single core tool, with the possibility of more artifacts being obscured by vegetation. The size was listed as 40 x 35 ft at an elevation of 580 ft. Additional testing revealed no artifacts. There is SHPO concurrence that the site is not eligible for listing in the National Register (SHPO 2004).
- **CA-ORA-912** contains a small scatter of cores, core tools, flake tools, and hammerstones. It is mapped as being 140 m x 70 m in size on the 320-foot contour.
- **CA-ORA-913** contains a light flake and artifact scatter consisting of cores, core tools, debitage, and a single flake tool. The size was listed as 50 m north/south by 75 m east/west at an elevation of 320 ft. Artifacts were observed to a depth of 15 cm.
- **CA-ORA-914** contains chipped stone and ground stone artifacts and fire affected rocks within a 155 m northwest/southeast by 45 m northeast/southwest area on the 320-foot contour with a subsurface component.
- **CA-ORA-915** contains flakes and flake tools, fire-affected rocks, and a bedrock milling slick in a 50 m by 60 m area on the 320-foot contour with a subsurface component.
- **CA-ORA-916** is a lithic and artifact scatter containing large flake tools, cores, hammerstones, fire affected rock, a pestle, marine shell, and animal bone in a 400 m east/west by 200 m north/south area.
- **CA-ORA-917** contains hammerstones, scrapers, flakes, cores, choppers, fire affected rock, and a metate in a disturbed context within a 300 m east/west by 50 m north/south area.
- **CA-ORA-920** is a lithic scatter with metate fragments, a mano, a flake scraper, and fired lithics in a 531 m northeast/southwest by 50 m northwest/southeast on the 600-foot contour. There is no apparent subsurface component.
- **CA-ORA-921/1127** is a large multicomponent site combining two separate sites (CA-ORA-921 and CA-ORA-1127) into a large single site measuring 315 m northeast/southwest by 140 m northwest/southeast. Many portions of this site are deeply buried under a 1.5–4.5 m layer of sterile overburden. A human burial was also discovered and left in place.

- **CA-ORA-1028** is a large camp or small village containing metates, manos, hammerstones, cores, numerous flakes, and chipped stone tools.
- **CA-ORA-1106** is a large lithic scatter of chipped and ground stone artifacts, including a basalt bowl fragment in a 20 m east/west by 230 m north/south area on the 560-foot contour with no apparent depth.
- **CA-ORA-1168** is a sparse lithic scatter containing cores, flakes, ground stone fragments, and fire affected rocks in a 44 m northwest/southeast by 3 m northeast/southwest area on the 475-foot contour with no depth. A housing development has destroyed the site.
- **CA-ORA-1175** is a lithic scatter containing one basalt tool and two flakes in a 20 m x 20 m area on the 300-foot contour with no depth. A housing development in the area destroyed the site.
- **CA-ORA-1559** is a moderate scatter of ground and chipped stone artifacts, including a discoidal, within a 60 m east/west by 50 m north/south area on the 600–640 ft contour. Depth extends to at least 30 cm. There is concurrence from the SHPO that the site is eligible for listing in the National Register (SHPO 2004).
- **CA-ORA-1560** is a moderate scatter of ground and chipped stone tools within a 40 m east/west by 30 m north/south area on the 560–580 ft contour. Depth extends to at least 30 cm. There is concurrence from the SHPO that the site is eligible for listing in the National Register (SHPO 2004).
- **CA-ORA-1561** is a sparse lithic scatter containing two discoidals and a hammerstone on the surface. The site was mapped as occupying an area 30 m east/west by 5 m north/south at an elevation of 720 ft. Testing revealed no depth. There is concurrence from the SHPO that the site is not eligible for listing in the National Register (SHPO 2004).
- **CA-SDI-1074** is in the physiographic location of Kroeber's (1925) ethnohistoric village of *Hechmai*. It contains an extensive assemblage of artifacts, including ceramic sherds, one ceramic bead, general hand tools, projectile points, manos, mortars, shell beads, abalone fish hooks, numerous species of shellfish, and fish bones. The site is mapped as being 560 m east/west by 335 m north/south in size; however, most of the site has been destroyed by construction of the I-5, PCH, Southern California Edison facilities, and the Camp Pendleton percolation ponds.
- **CA-SDI-1075**. According to O'Neil (1988), this is the Juaneño geographical feature *pameva*. It is described as a "shell midden 'loaded' with stone artifacts" in a 500 m north/south by 30 m east/west area on the 50–200 ft contour. Recent visits to the site reveal that it has been highly disturbed.
- **CA-SDI-4412** is a low-density midden containing hammerstones, flakes, retouched flake, projectile point, a core, and shell fragments in a 140 m northwest/southeast by 80 m southwest/northeast area. Recent visits to the site reveal that it has been highly disturbed. There is a historical marker on the site noting the location of Forster City, a small farming community that was abandoned in the late 1890's.
- **CA-SDI-6692** is a light scatter of lithic material containing two basalt cores.
- **CA-SDI-13324** is an extensive cultural deposit containing chipped and ground stone artifacts, abundant shellfish remains, and bone extending to depths of 100cm with two apparent loci in a 400 m north/south by 100 m east/west area on the 30-foot contour.

- **CA-SDI-13325** is an extensive occupation site containing marine shell fragments and lithic artifacts in a 400 m by 300 m area. There are two loci of concentrated artifacts and shell remains with a lighter concentration of artifacts and marine shell in other areas of the mapped site. Based on geotechnical borings that were monitored by an archaeologist, the depth of the site may extend to between 2.74 m and 2.89 m below the surface.
- **CA-SDI-17544** is a multicomponent site consisting of a prehistoric artifact scatter with flakes, cores, expedient flaked stone tools, and groundstone scattered within an area measuring 480 m northeast/southwest by 240 m northwest/southeast at an elevation of 70–120 ft. It also contains post-1945 structural remains and associated historic trash.
- **37-026821** is an abandoned well and consists of three concrete standpipes and a square metal box that probably enclosed the well head and pump. A large redwood log is located just south of the well.
- **37-026827** is a military training area containing bleachers, a trash scatter, and a rocket can as well as abundant cartridge casings in an area measuring 168 m northeast/southwest by 53 m northwest/southeast at an elevation of 230–270 ft.
- **The San Mateo Archaeological District (SMAD)** is located in the southwestern portion of the project. It is believed to be the location of the ethnohistoric village of *Panhe*. The district includes six sites: CA-ORA-22/CA-SDI-13071, CA-SDI-4282, CA-SDI-4535, CA-SDI-8435, CA-SDI-11,703, and CA-SDI-11,929. The district is eligible for the National Register under criteria A (contribution to broad and specific patterns of Juaneño history) and D (potential to address issues regarding the prehistory of coastal southern California). The district occupies an area measuring approximately 1,800 m north/south by 570 m east/west and includes approximately 180 ac (73 ha).

SUMMARY OF OTHERS WHO WERE CONSULTED

The Native American Heritage Commission was contacted in order to determine whether there were any sacred sites along the alignment and to obtain a list of Native Americans who could be contacted who might have additional knowledge about cultural sites in the area. In addition, Stan Berryman, the Base Archaeologist at Camp Pendleton, was contacted in order to obtain site and survey information from records maintained by Camp Pendleton.

NATIVE AMERICAN CONSULTATION

The Native American Heritage Commission (NAHC) was contacted by letter (dated October 23, 2003) requesting information on traditional cultural properties present in the project APE. A copy of the Draft Environmental Impact Report for SOCTIIP (P and D 2003) was provided to Juaneño groups for comment. The Juaneño Band of Mission Indians commented with the concern that their ancestral village of *Panhe* might be impacted. They also indicated that additional sites may be buried.

FHWA and LSA held meetings on June 24 and 25, 2005, in San Clemente, California, to present to Native American groups the proposed project and the results of archaeological surface surveys. A total of 31 federally and non-federally recognized Native American groups and tribes were invited, based on a list obtained from the NAHC. Native Americans were then given the opportunity to comment. Interested groups and tribes will be given the opportunity to comment on this draft report, and the draft testing plans.

CHAPTER V: BACKGROUND

ENVIRONMENT

Geology and Geomorphology

The MGA is located on the western flank of the Peninsular Ranges geomorphic province. This region is characterized by a series of northwesterly trending mountain ranges separated by northwesterly trending valleys and subparallel faults branching from the San Andreas Fault. These ranges are essentially a series of fault bounded blocks that dip gently to the west and have a steep eastern escarpment. The Peninsular Ranges extend from the tip of Baja California to the Transverse Range north of the Los Angeles Basin. The width of the Province varies from 30 to 225 miles, with a maximum landbound width of 65 miles (Sharp 1976). The Los Angeles Basin and the island group (Santa Catalina, Santa Barbara, and the distinctly terraced San Clemente and San Nicolas Islands), together with the surrounding continental shelf (cut by deep submarine fault troughs), are included in this province (California Geologic Survey 2002). The rocks of the Peninsular Ranges are typically composed of Jurassic-age medasedimentary and metavolcanic as well as Cretaceous-age igneous rocks of the Southern California batholith. These older rock units are, in turn, capped by limited exposures of Cretaceous to recent marine and terrestrial sedimentary deposits composed of every sedimentary rock type from clay, silt, sand, gravel, and cobbles. The primary sediment source for the geologic formations in this province is the uplifted Southern California batholith.

Specifically, the project area is located at the confluence of several mountain ranges in the Peninsular Ranges geomorphic province. The Santa Ana Mountains are located to the north and northeast, the Santa Margarita and San Onofre Mountains are located to the east at the southern end of the project. Several geologic formations and surficial units are exposed either within or immediately adjacent to the proposed alignments. The bedrock formations include, from oldest to youngest, the Williams Formation–Pleasants Sandstone member, the Silverado Formation, the Santiago Formation, the Sespe Formation, the San Onofre Breccia, the Monterey Formation, and the Capistrano Formation. In a general sense, the older formations are located farthest from the coast. Surficial units include, from oldest to youngest, marine terrace deposits, nonmarine terrace deposits, landslides, colluvium, and alluvium. Aside from the marine terrace deposits, which are restricted to a band within one mile of the coast, all the other units are exposed throughout the project alignments.

The bedrock formations can be composed of mudstones, sandstones, and conglomerates. Native Americans often utilized bedrock formations as a source of raw material that could be used in their daily lives. Sandstone outcrops often form caves that can be used as shelter. In addition, very resistant sandstone was also used as a platform for grinding seeds, which created a depression that is known as a bedrock milling feature, or BRM. BRMs have been found in many nearby places, including within Camp Pendleton, east of the alignments (Reddy 1998). Some of the bedrock formations such as the Williams, Silverado, Santiago, and San Onofre Breccia contain conglomerate outcrops that the Native Americans used as a source of cobbles to make flake and ground stone tools. In addition, some of the bedrock formations, such as the Monterey Formation, have siliceous lenses that could have been used

by the Native Americans as a source for chert that was used to make spear and arrow points, knives, scrapers, or any other flake stone tool.

The surficial units such as alluvium and marine and nonmarine terrace deposits were often used as a source for cobbles and boulders. These cobbles and boulders were turned into items, such as manos and metates that were used to process seeds and stone bowls and as a source for rocks that were used to manufacture flake stone tools. Often times, these cobbles and boulders were composed of rock types that were transported over long distances (e.g., granite, metavolcanic rocks) and were quite useful to the Native Americans in making tools. Often times, sites are not only exposed at the surface, but can become buried beneath surficial sediments and have no surficial expression. The southern end of the project is located within the San Mateo Creek Watershed, which encompasses a 135.5-square-mile area, and includes Cristianitos Creek, which itself has a watershed of 31.5 square miles. This watershed has transported a large amount of sediment from the surrounding mountain ranges to the coast. Studies by Byrd (1998) indicate that alluvial sediment began to be deposited in the San Mateo Watershed over the last 18,000–20,000 years, as the sea level began to rise in response to melting glaciers from the last ice age. The sedimentation rate probably closely matched the rate of the rise in sea level, which reached a low stand of 120 m below its current stand 18,000–20,000 years ago. Byrd (1998) references studies by others that indicate the sea level rose rapidly over 10,000–12,000 years and reached a level of 16 m below its current stand 8,000 years ago; it was -12 m 5,000 years ago, -8 m 4,000 years ago, -2 m 3,000 years ago, and it has slowly risen to its current stand over the last 3,000 years.

In addition to the rising sea level, the California coast has experienced tectonic uplift in response to movement along various faults. Byrd (1998) cites studies that indicate that uplift has averaged 10–40 cm/1,000 years and that uplift along the San Diego coast has been measured between 16 and 20 cm/1,000 years. Recent work by Grant et al. (1999) calculated an uplift rate of 21–27 cm/1,000 years within the San Joaquin Hills, located 18 miles up the coast from San Mateo Creek. Although not much of a factor when the sea level rises rapidly, the tectonic uplift becomes a factor when sea level rise slows and has influenced the deposition of sediment in the lower reaches of San Mateo Creek.

Byrd (1998) has mapped two Holocene stream terraces within the San Mateo drainage, which he named T-1 and T-2. T-2 is the relatively flat area that corresponds to the broad agricultural fields on the east side of the channel but is also present on the west side. T-2 is approximately five m above the modern channel, and T-1 is approximately two m above the modern channel and occasionally is still flooded. Radiocarbon dating of exposed sediment within T-2 yielded ages ranging from 3,810 +/- 60 years before the present (ybp) to 390 +/- ybp. A single radiocarbon date from the T-1 terrace yielded an age of 580 +/- 50 ybp. At some point around 580 years ago, the age of the T-1 terrace, the San Mateo creek system, changed from a stream that was aggrading to one that was eroding. This erosion created the elevated terraces that are present today. The exact reason for this change is not known, but is probably related to the continued slowing of sea level rise matched with the continued coastal uplift that created a knickpoint (an abrupt change in the longitudinal profile of a stream) that migrated inland.

Byrd (1998) reports that archaeological sites have been identified at depth within the T-2 terrace, with the older site being found at greater depth. Byrd (1998) reported no archaeological sites within the smaller T-1 terrace. The fact that archaeological sites are found at depth within the T-2 terrace suggests that the area has been occupied and reoccupied for at least the last 3,800 years, even after flood events

covered previous habitation areas. However, because of a high water table, Byrd (1998) was only able to excavate to a maximum depth of 3.5–4 m below the surface within the T-2 terrace. Because humans have been documented in the area as far back as 8,000–10,000 years, it is possible that remains of human habitation may extend as deep as or deeper than 16 m below the present-day surface. As stated above, sea level was 16 m below its present stand 8,000 years ago, and streams tend to keep similar gradients as they deposit sediments on their way to the sea.

The MGA also crosses or travel along several other streams, such as San Juan Creek and Cañada Chiquita, as well as unnamed tributaries to the major streams in the area that have also deposited sediment and may contain buried archaeological deposits. In addition, colluvium occurs on most hillsides and hilltops. Colluvium is chiefly composed of detritus of the nearby or underlying bedrock formations mixed with topsoil and, like alluvium, can also obscure archaeological deposits. However, colluvial cover is not as thick as the alluvial sediments (generally less than three ft), as opposed to tens of ft for the alluvial sediments.

Biology

Jaeger and Smith (1966) noted that the climate of the project area is Mediterranean semiarid steppe moderated by its proximity to the coast. The Mediterranean climate is characterized by mild winters, warm springs and autumns, and hot, dry summers. Rains primarily occur in the winter and early spring. Morning fog occurs along the coastal plain and occasionally reaches the inland valleys and mountains.

There are six biotic communities in the project area as defined by Jaeger and Smith (1966:39–46): freshwater marsh, riparian woodland, coastal sage scrub (CSS), chaparral, valley grassland, and the southern oak woodland. A description of each follows. Each of these environments provided food and resources that could have been used by the early inhabitants of the area.

Freshwater Marsh Biotic Community

The freshwater marsh biotic community is scattered throughout Southern California. This community is generally found at elevations below 500 ft. It includes both standing or slowly moving water and semidry areas that have a wet substratum. Plants in this community include the common tule (*Scirpus acutus*), California bulrush (*Scirpus californicus*), cattails (*Typha latifolia* and *T. augustifolia*), spike rushes (*Eleocharis* spp.), pondweeds (*Potamogeton* spp.), and sedges (*Carex* spp.). Birds in this community include the gallinule (*Gallinula chloropus*), American coot (*Fulica americana*), long-billed marsh wren (*Telmatodytes palustris*), redwinged blackbird (*Agelaius phoeniceus*), and yellowthroat (*Geothlypis trichas*). The reptiles and amphibians in this community include the garter snake (*Thamnophis* spp.), western pond turtle (*Clemmys marmorata*), and the Pacific treefrog (*Hyla regilla*).

Riparian Woodland Biotic Community

The riparian woodland biotic community is located by streams leading from the mountains to the plains and sea. It is a somewhat restricted community, mainly due to its dependence on the presence of

or proximity to nonseasonal watercourses. Surface water is not an absolute requirement, as an underground water source can be an adequate substitute. The width of this community can vary greatly. Where nonseasonal streams flow out of the mountains and onto flatter grasslands, the riparian woodland community may be a relatively broad one; but in the higher elevations, where water flows down a narrow passageway often confined by steep hillsides, this community may be only a few meters in width. Plants in this community include white alder (*Alnus rhombifolia*), bigleaf maple (*Acer macrophyllum*), western sycamore (*Platanus racemosa*), black cottonwood (*Populus trichocarpa*), Fremont cottonwood (*Populus fremonti*), several species of willow (*Salix* spp.), mulefat (*Baccharis salicifolia*), and smaller plants such as stream orchid (*Epipactis gigantea*), poison oak (*Toxicodendron diversilobum*), California blackberry (*Rubus ursinus*), and horsetails (*Equisetum* spp.). Birds include the belted kingfisher (*Megaceryle alcyon*), dipper (*Cinclus mexicanus*), yellow-breasted chat (*Icteria virens*), yellow warbler (*Dendroica petechia*), western flycatcher (*Empidonax difficilis*), song sparrow (*Melospiza melodia*), and house wren (*Troglodytes aedon*). Mammals in this community include the raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and dusky-footed woodrat (*Neotoma fuscipes*). Reptiles and amphibians include the common garter snake (*Thamnophis sirtalis*), western pond turtle (*Clemmys marmorata*), southwestern toad (*Bufo microscaphus*), and the ensatina (*Ensatina eschscholtzi*).

Coastal Sage Scrub Biotic Community

The CSS biotic community is located in well-drained gravelly or rocky slopes of the cismontane areas. CSS exists mainly at elevations below 3,000 ft. CSS generally occupies drier areas than does chaparral. It is often best developed on steep, south-facing wind-exposed slopes and in areas where the marine layer penetrates inland to the foothills and canyons. This community receives on average 10–20 inches of annual rainfall and is subject only rarely to frost conditions. Shrubs are adapted to long, dry summers in several ways: they either drop their leaves or produce smaller leaves on secondary shoots during the summer; their root systems are generally shallow; some may store water in succulent leaves and stems; and some produce aromatic oils from the leaf surfaces, which makes them less appealing to grazing and browsing animals but also increases their flammability during the frequent fires. Because of the frequent fires, CSS shrubs are fire-adapted, whereby many require the heat of fire for seed germination and many can sprout from their burned stumps. Plants include California sagebrush (*Artemisia californica*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*), encelia (*Encelia farinosa*), yerba santa (*Eriodictyon californica*), eriophyllum (*Eriophyllum fasciculatum*), lemonade berry (*Rhus integrifolia*), prickly pear (*Opuntia* spp.), and Our Lord's candle (*Yucca whipplei*). Birds in this community include Costa's hummingbird (*Calypte costae*), cactus wren (*Campylorhynchus brunneicapillum*), lazuli bunting (*Passerina amoena*), wrentit (*Chamaea fasciata*), brown towhee (*Pipilo fuscus*), sage sparrow (*Amphispiza belli*), and rufous-crowned sparrow (*Aimophila ruficeps*). Mammals in this community include the California ground squirrel (*Spermophilus beecheyi*), nimble kangaroo rat (*Dipodomys agilis*), desert woodrat (*Neotoma lepida*), California mouse (*Peromyscus californicus*), and short-eared pocket mouse (*Perognathus fallax*). Reptiles in this community include the western fence lizard (*Sceloporus occidentalis*), striped racer (*Masticophis lateralis*), and the western rattlesnake (*Crotalus viridis*).

Chaparral Biotic Community

The chaparral biotic community occupies dry, rocky, or gravelly slopes with either light or heavy soils at elevations generally above that of CSS (3,000 ft), but sometimes adjacent to it. The boundary between chaparral and CSS is not always clear; many chaparral species are found in CSS, and many CSS species are found in chaparral. Chaparral shrubs are typically 6–12 ft high and have deep roots for collecting moisture. Plants are usually so close together that there is little to no understory vegetation. Common plants in this community include chamise (*Adenostema fasciculatum*), several species of California lilac (*Ceanothus* spp.), bigberry and eastwood manzanita (*Arctostaphylos glauca* and *glandulosa*), scrub oaks (*Quercus dumosa* and *Q. berberidifolia*), mountain mahogany (*Cercocarpus betuloides*), coffeeberry (*Rhamnus californica*), woolly blue curls (*Trichostema lanatum*), toyon (*Heteromeles arbutifolia*), foothill ash (*Fraxinus dipetala*), sugarbush (*Rhus ovata*), hollyleaf and littleleaf redberry (*Rhamnus ilicifolia* and *crocea*), bush poppy (*Dendromecon rigida*), silk-tassel bush (*Garrya veatchii*), prickly poppy (*Leptodactylon californicum*), laurel sumac (*Malosma laurina*), hollyleaf cherry (*Prunus ilicifolia*), and chaparral yucca (*Yucca whipplei*). Animals found in this community are similar to those found in the CSS community.

Valley Grassland Biotic Community

The valley grassland biotic community in Southern California occupies deep, sometimes rocky but usually well-drained soils, generally below 4,000 ft, often on south-facing slopes but more typically on flatter land. It is usually adjacent to and often mixed in with chaparral, CSS, and southern oak or riparian woodland communities. It can sometimes be dotted with oak species such as valley and coast live oaks (*Quercus lobata* and *Q. integrifolia*); however, the valley grassland, as its name implies, is composed primarily of grasses. These include decreasing expanses of native genera such as needle grass (*Stipa* spp.), bunch grass (*Poa* spp.), or three-awn (*Aristida* spp.) and increasing areas of introduced genera such as brome grass (*Bromus* spp.), wild oats (*Avena* spp.), fescue (*Festuca* spp.), ryegrass (*Lolium* spp.), and harding grass (*Phalaris* spp.). In the spring, especially after years with above average rainfall, masses of wildflowers (many native, some introduced) appear. These include buttercup (*Ranunculus* sp.), larkspur (*Delphinium* sp.), mariposa lily (*Calochortus* sp.), tarweed (*Hemizonia* sp.), blue-eyed grass (*Sisyrinchium* sp.), blue dicks (*Dichelostemma* sp.), paintbrush and owl's clover (*Castilleja* spp.), baby blue eyes and meadow nemophila (*Nemophila* spp.), lupines (*Lupinus* spp.), California poppy (*Eschscholzia californica*), sow-thistle (*Sonchus* sp.), star-thistle (*Centaurea* sp.), and filaree (*Erodium* sp.).

Southern Oak Woodland Biotic Community

The southern oak woodland biotic community is located in the foothills. It consists of woody vegetation that is generally over 15 ft tall and is typically located on north-facing slopes, shaded canyon ravines, and sheltered interior valleys, all below approximately 5,000 ft. It grades into both the valley grassland and riparian woodland communities. Often, this community is crossed by intermittent streams. Plants in this community include valley oak, coast live oak, and engelmann oak (*Quercus lobata*, *Q. agrifolia*, and *Q. engelmannii*), black walnut (*Juglans californica*), western sycamore (*Platanus racemosa*), California bay laurel (*Umbellularia californica*), toyon (*Heteromeles arbutifolia*), and Mexican elderberry (*Sambucus mexicana*). In addition, smaller trees and shrubs such as coffeeberry (*Rhamnus californica*), sugarbush, lemonade berry, and squawbush (*Rhus ovata*, *R.*

integrifolia, and *R. trilobata*), poison oak (*Toxicodendron diversilobum*), coastal wood fern (*Dryopteris arguta*), and bracken fern (*Pteridium aquilinum*) as well as other herbaceous plants and grasses form an understory, which is an important part of this community. Birds include California quail (*Lophortyx californicus*), acorn woodpecker (*Melanerpes formicivorus*), scrub jay (*Alphelocoma coerulescens*), plain titmouse (*Parus inornatus*), common bushtit (*Psaltriparus minimus*), and black-headed grosbeak (*Pheucticus melanocephalus*). Mammals in this community include the mule deer (*Odocoileus hemionus*), raccoon (*Procyon lotor*), gray fox (*Urocyon cinereoargenteus*), western gray squirrel (*Sciurus griseus*), dusky-footed woodrat (*Neotoma fuscipes*), California mouse (*Peromyscus californicus*), and the brush mouse (*P. boylii*). Reptiles include the western fence lizard (*Sceloporus occidentalis*), skinks (*Eumeces* spp.), California mountain kingsnake (*Lampropeltis zonata*), and red rattlesnake (*Crotalus ruber*).

Environmental Discussion

Based on the geology and geomorphology of the area, it is likely that undiscovered archaeological sites may exist within any of the alignments. In addition, many of these sites may be buried beneath alluvial sediments within the stream drainages or beneath colluvium below hill and ridge landforms. It is also possible that some sites have been destroyed or adversely impacted over the years through the process of erosion in many of the river valleys that the project passes. Due to the steep terrain in many areas of the project, some areas could not be accessed during the archaeological surveys. However, it is likely that landforms exhibiting steep slopes would not have been favorable for occupation by Native Americans.

As much of the project passes through undeveloped areas, the biologic communities sometimes created access or limited visibility constraints. So, although surveys have occurred along the entire MGA project area, it is likely that resources may have been missed. For example, dense grasses in the valley grassland biotic communities often reduced visibility of the ground surface to five percent or less; dense brush in the CSS and chaparral communities was often so thick that there was no access; the southern oak woodland biotic community sometimes had a carpet of leaves several inches thick that reduced ground visibility to zero; and wet and swampy conditions in the freshwater marsh and riparian woodland communities often limited access.

ETHNOGRAPHY

The proposed SOCTIIP lies on the border of Gabrielino, Juaneño, and Luiseño territories. The ethnohistoric group identified in northern San Diego County is the Luiseño. The Juaneño are considered to be a linguistically related subgroup of the Luiseño and occupy the area near San Juan Capistrano. Recently, ethnohistoric research has been conducted by Johnson et al. (1998), establishing cultural affiliation of current federally recognized Luiseño tribes with political groups once residing within land now on Camp Pendleton. Although Gabrielino territory is just outside the SOCTIIP project area, it is within the Gabrielino region of influence.

What is known about the Gabrielino, Juaneño, and Luiseño was recorded principally during the initial European land expeditions through the Southern California area. The reason for this is that the swift decline in native populations made it difficult even for early European explorers and inhabitants to

observe endemic Southern California peoples in a natural state. This decline in native population was brought about by the inability of Native Americans to resist European diseases introduced through initial contact and the establishment of the mission system. This section describes previously published accounts of Gabrielino, Juaneño, and Luiseño territory.

Territorial descriptions of the various native tribes inhabiting the vicinity of the project area vary somewhat. The Gabrielino occupied the coastal areas of what is now Los Angeles and Orange Counties from Topanga Creek on the north to Aliso Creek in the San Joaquin Hills on the south (Kroeber 1925:620–621; Johnston 1962; Bean and Smith 1978:538; McCawley 1996:3).

Both Sparkman (1908:188–189) and Bean and Shippek (1978:550–551) state that the Luiseño occupied the area from a point just north of San Juan Capistrano southward to the mouth of Agua Hedionda in what is now Carlsbad. Sparkman (1908:189) states that due to language differences, the group near San Juan Capistrano was not considered Luiseño by some. The subsuming of Juaneño by Luiseño is further illustrated by the inclusion of a discussion of Juaneño within a chapter on Luiseño (Bean and Shippek 1978). Rather than give an exact description of Luiseño territory, Kroeber (1925:648–649) states that the northern and northwestern neighbors of the Luiseño are the Gabrielino and Juaneño. Bean and Shippek (1978:551) depict Luiseño territory as centered on the San Luis Rey and Santa Margarita Rivers.

Kroeber (1925:636) states that the Juaneño were wedged in between the Gabrielino and Luiseño, and Juaneño territory ran from Aliso Creek on the north to a point between San Onofre and Las Pulgas on the coast. Rather than having a distinct language, Juaneño speech was said to be a dialect of Luiseño (Kroeber 1925:636). White (1963:104) states that the dialectical differences between the Juaneño and Luiseño “did not prevent mutual misunderstanding” White (1963:104) continues that although local variations in culture between Juaneño and Luiseño may have existed, it was of a village level rather than at a tribe level, suggesting only minor differences between the two groups. Sparkman (1908) and White (1963) argue that the Juaneño are really a subgroup of the greater Luiseño tribe. O’Neil (1988:107, 111) also makes reference to the Juaneño being a coastal branch of the Luiseño. Merriam (1968) extends Juaneño territory northward to the Santa Ana River and Newport Bay, although this is quite a distance north when compared with previous territory descriptions. These previous descriptions suggest major similarities between the Luiseño and Juaneño, perhaps as an initial stage of cultural evolution in the formation of a new language and tribal group. In any event, major similarities existed between the Luiseño and Juaneño groups, more so than the differences in language and custom between the Luiseño and Gabrielino.

The name “Gabrielino” describes those native groups living in what is now the Los Angeles and Orange County areas and was given due to the affiliation of these groups with Mission San Gabriel Arcángel. Linguistically, the Gabrielino as well as the Luiseño and Juaneño is a Cupan language in the Takic family, which is part of the Uto-Aztecan (formerly Shoshonean) linguistic stock that once extended across the Great Basin region of Utah, Nevada, and California (Bean and Shippek 1978:550; Bean and Smith 1978:538; McCawley 1996:2–3). In California, the northernmost members of this stock are the Mono, while the Chemehuevi are the easternmost, the Cahuilla are the southernmost, and the Luiseño are the southwesternmost California members (Kroeber 1925). These languages have elsewhere been referred to as Southern California Shoshonean.

The name Luiseño has been applied to those native people living within the “ecclesiastical jurisdiction of Mission San Luis Rey . . . [who shared] an ancestral relationship which is evident in their cosmogony, and oral tradition, common language, and reciprocal relationship in ceremonies” (Oxendine 1983:8). The term Juaneño describes those native people who were missionized into Mission San Juan Capistrano and who inhabited the northernmost portion of Camp Pendleton. Much of the existing ethnohistoric information about the Juaneño is derived from accounts about the Luiseño (Kroeber 1925; White 1963).

Near the northwestern end of the San Joaquin Hills, the Gabrielino village of *Genga* is recorded in upper Newport Bay near the confluence of two drainages. The Juaneño village of *Putuidum* was situated along lower Trabuco Creek (O’Neil 1988), and *Ahachmai* was located along the same drainage to the south, nearer the coast (Kroeber 1925: Plate 57; O’Neil and Evans 1980:227). At the coast, the village of *Panhe* (*Pange* or *Panga*) was situated at the mouth of San Mateo Creek, while *Hechmai* (*Quechinga* or *Kecchenga*) was located at the mouth of San Onofre Creek less than one mile south (Kroeber 1925:Plate 57; O’Neil and Evans 1980:227; Johnson et al. 1998:18). Englehardt (1998:50) quotes Father Peyri of Mission San Luis Rey, who states that the valley in which the mission is located was named *Quechinga* by the natives. Also, the village of *Souche* (*Zeucche*), according to Harrington (1934:61) and Johnson et al. (1998), is located in the vicinity of *Panhe*, at the confluence of San Mateo and Critianitos Creeks. *Panhe*, and perhaps the remnants of *Hechmai* are located within the project study area. Within Luiseño territory, *Topamai* is a major village located several miles inland along the Santa Margarita River (Kroeber 1925:Figure 57; McCawley 1995; Strudwick et al. 1995), while *Wiawio* is recorded as a village near the coast north of the mouth of the San Luis Rey River (Kroeber 1925:Figure 57). Bancroft (1967 [1884]:563) quotes Juan Pablo Grijalva (who accompanied Father Juan Mariner on his 1795 exploration of San Diego County), who states that there were two *rancherías* near Las Flores: *Chumella* and *Quesinille*. Sparkman (1908:192) and Kroeber (1925:Plate 57) show *Ushmai* (*Uchme*) near Las Flores. In preparation of a National Register of Historic Places registration form for the Las Flores *estancia*, Schaefer (1992) observed circa 1815 Mission San Luis Rey records locating a village of *Huisme* at Las Flores. Therefore, there is one ethnohistoric village in the study area, *Panhe*, and perhaps the remnants of a second, *Hechmai*.

A list of Luiseño culture elements was prepared by Drucker (1937), based on information provided by informants from the Soboba, Temecula, and Pala. An excellent description of Luiseño social organization, including descriptions of Luiseño environment, economy, religion, and warfare, is provided by White (1963). Father Gerónimo Boscana lived with the Juaneño natives at Mission San Juan Capistrano from 1812–1826 and recorded many of their daily and religious activities and beliefs (Boscana 1978; Bright 1978:iii; Harrington 1978).

A list of Gabrielino culture elements was prepared by Harrington (1942) and included in a publication describing material elements from the Central California coast. Auspiciously, a brief description of Native Californian customs, beliefs, and activities, including those of the Luiseño, Juaneño, and Gabrielino, was prepared by Kroeber (1908), most likely from notes from studies that were later used to prepare his seminal work on California Indians (Kroeber 1925). Informants from Kroeber’s earlier work (1908) are Fernandeno (Gabrielino living near Mission San Fernando) and Gabrielino.

Oxendine (1983) researched Late Period Luiseño villages and describes them as archaeological sites containing midden, bedrock milling features, prehistoric ceramic sherds, and usually pictographs and Cottonwood-style projectile points. Preferred habitation locations are described as along valley edges,

at interfaces of two or more plant communities, and in locations specifically containing a spring, a creek, sandy loam sediments, slopes of about nine percent, and bedrock with horizontal or slightly sloping faces. It is also suggested (Oxendine 1983:70) that preferred Luiseño village sites included elevated landforms such as knolls and ridges.

The Gabrielino, Luiseño, and Juaneño were hunters and gatherers who used both inland and coastal food resources. They hunted and collected seasonally available food resources and led a semisedentary lifestyle, often living in permanent communities along watercourses and near coastal estuaries. Commonly chosen habitation sites included rivers, streams, sheltered coastal bays and estuaries, and the transition zone marking the interface between prairies and foothills (McCawley 1996). The presence of water, a stable food supply, and some measure of protection from flooding were the most important factors relating to the location of habitation sites. Gabrielino and Luiseño communities located in the interior regions maintained permanent geographical territories or use areas that averaged 30 square miles, although it is likely that coastal settlements occupied less acreage, where food resources may have been more plentiful and more easily available throughout the entire year (White 1963:117, 119; Oxendine 1983:44).

In addition to permanent settlements, native groups occupied temporary campsites used seasonally for hunting, fishing, and gathering plant foods and shellfish (White 1963:120–124; McCawley 1996:25). Rabbit and deer were the most commonly hunted animals, while acorns, buckwheat, chía, berries, and fruits were some of the more commonly collected plant foods. Acorns were the staple food of most indigenous Californians (Kroeber 1925:84) and were the most characteristic feature of the domestic economy of native California (Gifford 1936:87). Fully 25–50 percent of inland Luiseño food is thought to have been acorns (White 1963:116, 121). Among the inland Luiseño, land use was patterned with only a small quantity of total territory in disuse (White 1963:122). The Gabrielino established seasonal camps along the coast and near estuaries and bays, such as Newport Bay, in order to fish, gather shellfish, and hunt waterfowl (White 1963:122; Hudson 1971). The economy of coastal groups is thought to have focused on marine rather than land resources (White 1963:119).

Gabrielino villages generally contained populations of 50–100 inhabitants, although larger communities may have existed. Luiseño and Juaneño villages are thought to have numbered approximately 200 individuals, while as many as 250 individuals may have inhabited some large Luiseño villages (White 1963:104, 117–119).

Boscana (1978:65) describes the permanence of Juaneño villages in the following passage: “. . . in the winter they resided in one place, and in summer another. This was general among them, excepting in the case of those tribes located on the sea-coast who seldom moved because their maintenance was derived from the sea.” This suggests that inland villages were seasonal, while coastal villages may have been occupied permanently, since their food source was more dependable.

Village communities were the focus of family life. Gabrielino communities each included one or more patrilineal extended families or lineal kinship groups, known as clans (Kroeber 1925; Johnston 1962; Bean and Smith 1978; McCawley 1996). Both Gabrielino and Luiseño clans and villages were apparently exogamous, marrying individuals from outside the clan or village (Reid 1852; White 1963:165). Luiseño groups were patrilocal and patrilineal, with kinship and habitation following the male lineage (White 1963:125). As for ownership and organizational principles, the Luiseño practiced both levirate and sororal polygyny, indicating that family groups consisting of sisters who were

married to the same man or to brothers, could use the same family-owned food preparation implements without friction arising from ownership values. It also shows that villages were clusters of closely related families (White 1963:125).

Gabrielino villages were united under the leadership of a *tomyaar*, or chief, who inherited his position from his father. Juaneño chieftainship is also known to have been hereditary in the male line (Kroeber 1925:645) and is thus assumed to be the same for the Luiseño, since both groups are known to have been related. Each Gabrielino lineage comprised several related nuclear families; membership in a lineage was traced through the father and allowed an individual to claim use rights over the territory owned by that group. The *tomyaar* was the leader of the religious and secular life of the community and served as chief administrator, fiscal officer, war leader, legal arbitrator, and religious leader (Bean and Smith 1978; Harrington 1942:32). The *tomyaar* was aided in his duties by a Council of Elders, which consisted of the leaders of the lineages residing in the community as well as other wealthy and influential individuals. Council positions were hereditary and descended from father to son.

Shamans also played an important role in Gabrielino society, serving as the principal doctors, therapists, philosophers, and intellectuals; often, the *tomyaar* himself was an important and influential shaman (Bean and King 1974:25–26). The Juaneño word for shaman is *pul*, which appears to be the singular of *puplem*, “the initiated” (Kroeber 1925:643). The lack of differentiation between the shaman and those who were fully instructed in sacred tribal lore insinuates that shamans were revered figures. Luiseño shamans were known to have used stone pipes, despite the fact that the common smoking pipe was ceramic (Kroeber 1925:653). This suggests that when found on Late Prehistoric Period sites, stone pipes may have religious significance.

Native culture in coastal Southern California was characterized by an active and elaborate system of rituals and ceremonies. Rituals included individual rites of passage, village rites, seasonal ceremonies, and participation in the widespread *Chinigchinich* cult (variant spellings, Kroeber 1925; McCawley 1996). The cult of the culture hero *Chinigchinich* was observed and recorded by Franciscan missionary Father Gerónimo Boscana during his residences at Missions San Luis Rey (1811–1814) and San Juan Capistrano (1814–1826) and describes the rich and complex cosmology and rituals practiced at the time (Boscana 1978; Harrington 1933).

At the time of European contact, the material wealth and cultural sophistication of the Gabrielino people was exceeded only by their northwestern neighbors, the Chumash. This led Bean and Smith (1978:538) to comment: “With the possible exception of the Chumash, the Gabrielino were the wealthiest, most populous, and most powerful ethnic nationality in southern California, their influence spreading as far north as the San Joaquin Valley Yokuts, as far east as the Colorado River, and south into Baja California.”

Recent ethnohistoric research has also been conducted for the Camp Pendleton area. Two recent ethnohistoric reports have documented Native American marriages and village names for the Camp Pendleton area. The first report (McCawley 1995) concentrates on *Topamai*, the Native American village associated with the Santa Margarita Ranch House, an adobe structure thought to have been originally constructed sometime between 1840–1865, when Juan Forster owned *Rancho Santa Margarita* (McCawley 1995:58–65; also see Strudwick 1996:7). McCawley identifies marriage ties linking *Topamai* with 25 other Luiseño settlements. He recommends that data from the San Luis Rey padrones and San Juan Capistrano mission registers could be compiled to determine the size and

age/sex composition of *Topamai*, as well as to identify those native lineages residing at *Topamai* and marrying into the community (McCawley 1995:81). McCawley (1995:81) also recommended a review of J. P. Harrington's recently archived microfilm photographs in an effort to identify definitive locations for a number of Luiseño place names.

A second ethnohistoric report (Johnson et al. 1998), based on San Juan Capistrano and San Luis Rey mission records, was used to establish cultural affiliation of current federally recognized Luiseño tribes with political groups once residing on land now within Camp Pendleton. The report demonstrated that patrilineal clans appear to have been village-specific, although larger communities (such as *Topamai*) were shown to contain a number of clans (Johnson et al. 1998:49). This report compiled information from census registers or padrones in an effort to recreate information from missing Mission San Luis Rey baptismal, marriage, and burial registers. It also began compiling the same information from Mission San Juan Capistrano registers. Information about Native Americans from both missions, now on a computer database, can be used for a number of purposes, including tracing ancestry. In conjunction with archaeological data, it may eventually be possible to identify likely village sites by using this information derived from mission registers and padrones.

PREHISTORY

The description of an overall regional chronology demarking the major stages of cultural evolution in the Southern California area has been attempted many times. Two principal chronologies, Wallace (1955; 1978) and Warren (1968), have been revised slightly (Koerper 1981; Koerper and Drover 1983). Southern California cultural developments occur gradually and appear to have long-term stability; specifically applying a chronology is often difficult.

These researchers have divided regional prehistory into a four-stage chronology describing changing artifact assemblages and evolving ecological adaptations. The principal chronology proposed by Wallace (1955) divides the area prehistory by major cultural changes within general prehistoric time periods. Wallace defined four cultural horizons, or periods, for Southern California. These include the Early Period, the Millingstone Period, the Intermediate Period, and the Late Prehistoric Period, which are discussed in detail below.

The Early Period covers a period between approximately 10,000 and approximately 5,500 BC. Artifacts and cultural activities from this time period represent a predominantly hunting culture (Wallace 1955). Although Early Period sites in Southern California are rare, Moratto (1984:76) lists several traits characteristic of sites occupied during this period. This list includes the shoreline locations of ancient lakes and marshes. In coastal areas, such sites are located along stream channels or near estuaries. Although bow and arrow do not exist, atlatl and dart are known. An array of specialized cobble, core, flake, and blade implements are also known. In certain areas, the presence of extremely large, often fluted bifaces marks the Early Period (Moratto 1984:81).

Early Period artifacts have seldom been identified in Orange County. Relatively early radiocarbon dates show that two sites, ORA-195 and ORA-64 (the Irvine Site), contain Early Period components, although ORA-64 was also occupied later in time (Erlandson 1994:219). Material from ORA-64 includes shellfish from Newport Bay, leading Drover et al. (1983) to conclude that the Early Period component at ORA-64 was similar to some early site components in the San Diego region.

Erlandson (1994:218-221) describes several radiocarbon-dated Early Period sites, including ORA-246, ORA-339, and ORA-386, that contain quantities of the rocky open coast-inhabiting mussel, *Mytilus californianus*. It is possible that Early Period occupation will be identified at those sites exhibiting Millingstone and Intermediate Period occupation when excavation and analysis procedures have become more advanced.

The Early Period is followed in time by the Millingstone Period. Sites from the Millingstone Period (post-5500 BC) typically contain groundstone artifacts such as manos, metates, and coggled stones, as well as soapstone objects. Wallace suggests that Millingstone Period cultures were generally hunter-gatherers who spent much time collecting and processing plants. When bifaces are found on Millingstone Period sites, they are commonly large and associated with the use of the atlatl.

Several Millingstone Period sites have been identified in Orange County. The best known is ORA-64, which dates to ca. 6000 BC (Erlandson 1994:219-221). Drover et al. (1983) suggest that early Millingstone Period sites represent refuse from mobile hunters and gatherers who utilized coastal resources during the winter and inland resources throughout the remainder of the year. By the late portion of the Millingstone Period, faunal remains suggest relatively permanent settlements in the Newport Bay area. Subsistence strategies included intensive hunting of small and large land mammals, sea mammals, and birds, as well as near-shore fishing and shellfish collecting. Elsewhere, small mammals were hunted and seeds were collected, as documented by the many millingstones found at Millingstone Period sites throughout the Orange County area.

By 3000 BC, coastal populations began greater reliance on marine resources. The remains of near-shore and deep sea fish appear more often as refuse in middens. Much farther inland, populations centered on pluvial lakes created by runoff from melting glaciers. In coastal areas, there was an increased use of the mortar and pestle, which marked a technological change in the manner in which seeds were processed. Instead of using just mano and metate, smaller seeds could be better contained in the basket like mortar or hopper mortar (basket asphalted to a mortar base), and it is possible that the mortar and pestle indicate a diversification in seed collecting strategy. The use of the mortar and pestle marks Wallace's Intermediate Period. Additional artifacts found predominantly within the Intermediate Period include discoidals and crescentics (crescentically shaped flaked stone artifacts).

Orange County researchers have had difficulty identifying the Intermediate Period, since tool categories, even the mortar and pestle, occur in both earlier and later periods. As a result, few Orange County sites have been placed in this Period. The few known sites often are dated by radiocarbon or obsidian hydration methods, which have isolated the Intermediate Period materials. Intermediate Period sites identified near Newport Bay include ORA-121 (Crownover et al. 1989), ORA-196/H (Strudwick et al. 1996), and ORA-287 (Clevenger 1986). Two temporary camps, ORA-221/222 and ORA-226, also appear to contain Intermediate Period components (Rosenthal and Padon 1986; Mason et al. 1987).

The Late Prehistoric Period begins approximately AD 500 (Bean and Smith 1978). During this period, artifact changes and new cultural practices occur. Smaller projectile points, representing bow and arrow hunting, appear on Late Period sites. This period is also marked by steatite effigies and by cremation as an interment practice. These artifacts and practices have been linked to a proposed Shoshonean (Takic) immigration from the Great Basin that ended at the coast. By AD 1000, smoking

pipes and ceramic pottery occur, although ceramic smoking pipes may occur somewhat earlier, within the later portion of the Intermediate Period. Dating of sites to the Late Period also depends on the occurrence of other items, such as Salton Sea (Obsidian Buttes) obsidian. Sites within the Orange County region occasionally contain the vitreous lithic (glassy stone) called Grimes Canyon fused shale, which originates from Ventura County (Demcak 1981; Hall 1988).

HISTORY

The first European exploration that occurred in California was by Hernando de Alarcón, who, in the service of Coronado explored the Gulf of California in 1540. He discovered the delta of the Colorado River and ascended the river to where it meets the Gila River.

In 1542, Juan Rodriguez Cabrillo explored the California coast by ship. Cabrillo discovered San Diego Bay and described the Los Angeles coastline and Channel Islands. He rounded Point Conception and continued north, noting the Santa Lucia Range along the Central California coast. Cabrillo may have sighted Monterey Bay and Point Pinos and may have continued north past Cape Mendocino and Cape Blanco on the Oregon coast. On the southward journey, Cabrillo landed at San Miguel Island where, in a skirmish with the natives, he broke his leg, which became infected. Cabrillo died shortly thereafter, on January 3, 1543, and was buried on one of the northern Channel Islands of San Miguel, Santa Cruz, Santa Rosa, or, possibly, on Santa Catalina Island (Kroeber 1925:552–556; Heizer 1972:1–15).

In 1602–1603, Sebastian Vizcaino similarly sailed along the California coast. Confusingly, he renamed many of the landmarks Cabrillo discovered. In some cases, his descriptions were embellished, which created some confusion for the explorers that followed. He charted the coast with great accuracy, and his maps continued to be used for nearly 200 years after he made them. On December 16, 1602, he anchored in what is now Monterey Harbor and named it “Puerto de Monterey” in honor of Gaspar de Zúñiga y Acevedo, 5th Count de Monterrey, then viceroy of New Spain. The name stands for *monte del rey* or “mountain/forest of the king” (Gudde 1998:246).

Spain had considered colonizing California in the years since the Cabrillo and Vizcaino explorations. Spain wanted a safe stopping-off point for the Manila galleons to take on fresh supplies on their way to Mexico. Spain also wished to stop Russia and England from establishing a presence on the west coast of the continent. However, Spain had been involved with other matters and did not make any serious attempt to do anything with California.

In the mid-1760s, reports of the Russians moving south from Alaska concerned the Spaniards. Word came from Madrid to take steps to halt the Russian incursion. Herbert Eugene Bolton has described the Spanish response to the Russian confrontation as “Defensive Spanish Expansion” (Brandes 1970:10). The viceroy of Mexico, the Marques de Croix, and the Inspector General for New Spain, Joseph (or José) de Gálvez, thus organized an expedition to formally claim California for Spain. The expedition that was created has come to be known as the Portolá expedition, since Captain Gaspar de Portolá was chosen to lead and was made Governor of the territory.

The Portolá expedition of 1769–1770 was the first land expedition through California. The expedition met in San Diego in June 1769 (Avina 1932:5), where the overland journey from San Diego to Monterey began.

Portolá left San Diego on July 14, 1769, in an effort to find the port of Monterey. On the afternoon of July 18, 1769, the expedition entered a broad valley in what is now the Camp Pendleton area (Bolton 1971:129–132). Crespi described the valley as being well-watered and “so green that it seemed to us that it had been planted.” The expedition noted two large native villages at both ends of the plain. The expedition camped near a pool and soon were visited by over 40 Indians. Crespi named the valley San Juan Capistrano and noted that it would be a good place for a mission. In fact, in 1798, Mission San Luis Rey de Francia was placed here. This location is along the San Luis Rey River, just inland of what is now Oceanside and south of Camp Pendleton. The expedition camped here for two days while Sergeant Ortega and his scouts were sent out to find a route for the expedition.

On July 20, the expedition resumed its journey (Bolton 1971:132–133). Two more valleys were crossed before the expedition entered a third. They set up camp in the third valley; even though they had only traveled approximately 1.5 leagues (4.0–5.9 miles) from their previous camp (refer to Shumway 1988:10 for definition of “league”). Since leaving San Diego, a mountain range had been observed to the east. It now appeared that the mountains were closing in on the north and would force them to go along the beach. The expedition sent out scouts to identify a path through the mountains. Meanwhile, they camped near a pool of fresh water. The scouts previously noted that there were several such pools in the valley. Crespi named this valley Santa Margarita. Sixty Indians from a nearby village came by. Crespi noted that they “have their town on the same plain” (Bolton 1971:133). Santa Margarita Valley is located on Camp Pendleton. The Portolá camp site is located near the ranch house of the *Rancho Santa Margarita y Las Flores*. The Indian village Crespi noted may be *Topamai*.

On July 21, 1769, the expedition moved off in a northwesterly direction (Bolton 1971:133–134). They may have traveled along where Basiline Road is now located. They came to a valley that had a great deal of water and vegetation, including wild flowers. This valley they named Santa Praxedis de los Rosales. This valley has been identified as Las Pulgas Canyon. The expedition set up camp near a village and was visited by about 14 Indians.

The next day, the expedition left early in the morning and traveled along a valley that trended north-northwesterly (Bolton 1971:134–135). This valley may be the south fork of San Onofre Creek. While camped there, the scouts returned and told the two priests that they saw two sick girls that appeared to be dying. Father Crespi and Father Gómez asked Portolá for some soldiers to escort them to see the children. The priests went to a village and saw the children. They baptized them in what was the first baptism in California (Portolá 1909; Costansó 1911; Bolton 1971). This site was named Los Cristianitos by the soldiers and is still named Cristianitos Canyon today.

On July 23, 1769, the expedition left early in the morning and continued in a northwesterly direction (Bolton 1971:136–137) where a village was observed. They set up camp near a large arroyo that had a stream of water in it (San Juan Creek?) They named this location Santa Maria Magdalena Valley (San Juan Capistrano). Crespi noted deposits of red ochre and “very white earth,” which he surmised were used by the Indians to paint themselves (Bolton 1971:136). Both Portolá (1909:21) and Costansó (1911:13) noted the large amount of vegetation and water in the valley.

Early the next day, the expedition set out and continued in a northwesterly direction. They passed two villages. Later, Crespi noted that the Indians had burned all of the grass (Bolton 1971:137). The expedition pitched camp on a mesa overlooking the valley. The mesa extended to the mountain range.

As soon as they stopped, the Indians from a nearby village came by and visited. The Indians were presented with ribbons and “gew-gaws.” The Indians gave the expedition seeds and grains. Portolá noted that the village had a population of 50 people (Portolá 1909:21). Crespi named this site San Francisco Solano.

The following day, the expedition rested. Crespi observed that the Indian houses were made of willows and that they used “large baskets of reeds so tightly woven that they hold water” (Bolton 1971:139). Also, the scouts said that from a nearby hill they saw islands. Several men, including Crespi, went to take a look and saw two islands, which he assumed to be San Clemente and Santa Catalina. Crespi thought that this would be an good place to put a mission.

It was also at this camp that Crespi learned some interesting news (Bolton 1971:139):

“They [the Indians] have given us to understand that in the interior there are people like us, who are clothed the same, and that the soldiers carry swords and wear hats, and that they have horses and mules, pointing to those that we have. God knows what truth is in their talk, or if we misunderstood them.”

The expedition continued north on its journey to Monterey. It ultimately traveled past Monterey and ended up at San Francisco near Fort Point. They sighted the Golden Gate and noted the Farallons and Point Reyes. They knew from Cabrera Bueno’s report that they had traveled too far to the north. The Portolá expedition relied on descriptions of Monterey previously recorded by Vizcaíno and Cabrera Bueno. However, the expedition had approached Monterey from the landward side and Vizcaíno had embellished his description; therefore, Portolá did not recognize the port. Realizing their mistake and being short on supplies, with many in the expedition suffering from scurvy and other illnesses, they made a hasty retreat back to San Diego. The southbound trip was made quickly, often passing previous camps. Winter was closing in. There were days of rain, snow was falling in the higher elevations, and the men were suffering from the effects of the cold. The expedition reentered the Los Angeles Basin on January 18, 1770. Crespi noted that the Los Angeles River had flooded. There was snow in the local mountains (Bolton 1971:269–270). The expedition returned to San Diego on January 24, 1770.

Spanish Mission Period (1769–1821)

The period from 1769–1821 is often referred to as the Spanish Mission Period (Robinson 1979:51–52). The period begins in 1769 with the Portolá expedition of 1769–1770 and ends in 1821, when Mexico gained independence from Spain (McGroarty 1911:117, 148; Avina 1932:29; Robinson 1979:13). Little Spanish exploration of the coast occurred between the early 1600s and 1769, most likely due to the limited naval resources available to Spain after the defeat of the Spanish Armada by the English fleet in 1588. By 1769, however, as previously documented with the Portolá expedition, suitable mission sites were documented, and colonization of Alta (upper) California began in earnest.

From 1769–1823, 21 California missions were established in Alta California (Lowman 1993:2). Mission San Diego de Alcalá, the first and southernmost of the Alta California missions, was established on July 16, 1769 (Lowman 1993:2, 5). The fourth of the Alta California missions, and the first to be established in Gabrielino territory, was Mission San Gabriel Arcángel, founded on September 8, 1771, near the present city of Montebello. After having considered a location along the

Santa Ana River, the Montebello site was chosen, but was moved five miles closer to the mountains in 1776, where it has remained (Lowman 1993:11). The seventeenth of the California missions established, and the second one within Gabrielino territory, was Mission San Fernando Rey de España, founded on September 8, 1797 (Lowman 1993:2, 15).

The seventh mission founded in Alta California was Mission San Juan Capistrano, established on November 1, 1776, in Juaneño territory (Lowman 1993:9). Although containing the same name, this mission is not to be confused with the locality identified by Crespi, where Mission San Luis Rey was eventually founded. In 1778, Mission San Juan Capistrano was moved to its present location in order to take advantage of a more dependable water supply. Engelhardt (1998) disputes that there ever was an old mission site, based on Font's description of the area during Anza's trek to San Diego in 1776 (see Font 1913:43–45 for a description of the journey). While the location of the old mission is unknown, its name is not. The lands occupied by the old mission have been anglicized as Mission Viejo (Sleeper 1988). The San Juan Capistrano mission land holding was extensive in order to support itself and its Indian converts. The mission lands stretched 13–14 leagues north to south and 3–4 leagues east to west. The mission ranchos included *Rancho Santa Ana*, *Rancho San Joaquin*, *Rancho Mission Viejo*, *Rancho Trabuco*, and *Rancho San Mateo* (Bancroft 1966; Englehardt 1998). The *Rancho San Mateo* is specifically named by the mission fathers due to encroachment on their lands by the Mission San Luis Rey to the south. Englehardt (1998:88) quotes a report from the mission fathers that mentions the San Mateo rancho as being about three leagues southeast of San Juan Capistrano. However, the Mission San Luis Rey placed their own mission's *Rancho San Onófrío* within one-half league of San Mateo, apparently on lands of San Juan Capistrano. The mission's *Rancho San Mateo* should not be confused with a later Mexican grant in northern California with the same name. The mission used the land for crops and cattle. This land was to be turned over to the Indians as a pueblo and was thus held in trust by the Church for the benefit of the natives (Robinson 1979). The missions recruited neophytes, native converts, to settle on land close to the mission. Local native villages, *rancherías*, were thus incorporated into the mission system.

The Franciscans' goal was to convert the Native Americans to Christianity and incorporate them into Spanish society. The local natives could learn metallurgy, plant and animal domestication, and European building construction methods. Europeans learned how and where indigenous people lived and gathered information about native life as well as ceremonial and ritual practices. Occasionally, this information was recorded, and it is from these early records that comes much of what we now know concerning native life.

In addition to founding missions, the Franciscans also established small outposts near the edges of their specific ranges, especially when it was not possible for individuals tending flocks to return to the mission each night. One outpost, or *estancia*, was constructed sometime during the 1820s on a site where José Andrés Sepúlveda later established his first hacienda. It is not clear whether the *estancia* was a mission outbuilding or merely a shelter for the mission *vaqueros* (cowboys) who tended the mission sheep and cattle (Sleeper 1969:3). Mission records indicate that the *estancia* was located on the bank of the Santa Ana River. The site of the *estancia* is preserved as part of the Diego Sepulveda Adobe, California Historical Landmark No. 227, located in the City of Costa Mesa's Estancia Park (Office of Historic Preservation 1996).

Other *estancias* were also established in the vicinity of Native American communities (McCawley 1995; Strudwick et al. 1995). It is likely that where mission lands were so extensive as to require more

than a day's journey to access, *estancias* were established. These structures would allow mission workers to stay near crops or herds without having to travel.

Ultimately, Spanish colonization resulted in the destruction of native culture and society. Two important factors that contributed to this decline included (1) the removal of the youngest, healthiest, and most productive natives from their traditional communities and their placement into the mission system, and (2) the introduction of highly infectious diseases, which eventually led to epidemics and reduced birth rates. As a result, traditional Native American communities were depopulated and the survivors integrated into local Mexican-American communities. When anthropologist A. L. Kroeber sought Gabrielino descendants during the 1920s, he was unable to locate a group claiming Gabrielino heritage. Today, the federal government does not recognize a local tribe or band, although there are individual spokespeople who have Gabrielino ancestors (Rosenthal et al. 1991).

The project area contains three mission ranchos: Rancho San Mateo, Rancho Mission Viejo, and Rancho Trabuco.

When the Portolá expedition was inland of what is now San Juan Capistrano on July 24–25, 1769, the Franciscan Fathers named one of the canyons San Francisco Solano. However, while in this canyon, one of the soldiers lost his blunderbuss, which was known as a “trabuco” in Spanish, and the name Trabuco became associated with the canyon where the gun was lost (Meadows 1966:135; Gudde 1998:398).

Engelhardt (1998:241) states that Father Pedro Font, who accompanied Juan Bautista de Anza on the journey from Mission San Gabriel Arcángel to Mission San Diego de Alcalá in 1776, noted the name Trabuco and mentioned the lost weapon in his diary. However, Font (1913:45) only states the following in his diary:

“January 8 [1776]: We set out from the Río de Santa Ana at seven in the morning, and, at a quarter to past four in the afternoon, halted in the Arroyo de Santa María Magdalena, otherwise called Arroyo de Quema, having traveled some fourteen leagues: about five to the east-southeast; four to the southeast - all this stretch as far as El Trabuco, winding on account of the hills; and the remainder, southeast by south.”

Interestingly, the principals of the 1769 expedition, Father Juan Crespi, Don Miguel Costansó, and Captain Gaspar de Portolá, never mention this lost gun in any of their diaries. Compare this with a similar situation that occurred near Santa Barbara on August 27, 1769:

“One of the heathen, taking advantage of the carelessness of a soldier, took his sword from the scabbard so cleverly that the soldier did not notice it, and marched off with it. Other heathen, who saw it, ran after the thief, and, although he sought the safety of the sea, it did not avail him, for the others caught him, took it from him, and returned it to its owner, who rewarded them with some beads” (Bolton 1971:175–176).

and

“At this place a soldier lost his sword; he allowed it to be stolen from his belt, but he afterwards recovered it as the Indians who had seen the act ran after the thief who had committed the robbery” (Costansó 1911:51).

The temporary loss of the sword is noted in the diaries of Crespi and Costansó, while no mention is made of the loss of a blunderbuss in the Trabuco area. Since both Portolá and Costansó were soldiers, they were likely to have noted the loss of such an expensive weapon.

The head of Trabuco Creek and Canyon is approximately 4.0 miles (6.4 kilometers [km]) southeast of Santiago Peak, and it joins San Juan Creek near Mission San Juan Capistrano, 20 miles (32 km) downstream. Properly, the upper part of the creek is referred to as Trabuco Canyon, while the lower portion near San Juan Capistrano is Trabuco Arroyo.

An interesting episode occurred in December 1818, when two Argentinian ships showed up off the coast of Southern California.

Hypolite (Hipólito in Spanish) Bouchard was born in France and by 1811 was in service to the fledgling Argentinian government fighting for independence from Spain. The Argentinian government issued letters of marque and reprisal to Bouchard, authorizing him to attack imperial Spanish property all over the world (Bancroft 1966). Because he was in service to a state, Bouchard was not a pirate per se, but rather a privateer, a private individual that kept a portion of what he took. In 1817, his ship, the *Argentina*, was in Hawaii to recover another Argentinian ship, the *Santa Rosa*. (The crew of the *Santa Rosa* mutinied and sold it to King Kamehameha.) The two ships were then outfitted with supplies and Bouchard sailed for California (Bancroft 1966).

Warned of the impending arrival of the privateers, the Spanish government made preparations. The missions were ordered to secure their valuables. Women and children were prepared to move inland, as was all livestock. Rancheros were ordered to report to the nearest presidio to help in defense (Bancroft 1966). The families living in San Diego were evacuated to Pala.

On November 20, 1818, the *Argentina* and the *Santa Rosa* entered Monterey Bay. After being fired upon by the defensive guns at the presidio, the privateers landed and sacked the presidio and Mission San Carlos Borromeo de Carmelo. The privateers left and sailed south (Bancroft 1966). The ships were sighted off Point Pedernales. They came ashore at Refugio and attacked a rancho there. Soldiers from the presidio at Santa Barbara attacked and captured three of the sailors. The two ships left Refugio and continued toward Santa Barbara (Bancroft 1966). Bouchard stopped off at Santa Barbara, exchanged prisoners, and continued south.

On December 13, soldiers under the command of Santiago Argüello left San Diego to protect Mission San Juan Capistrano. He found that the mission had not moved their property inland as previously ordered. He completed the task and placed the valuables at Rancho Trabuco. The privateers landed at Dana Point on December 14. They burned some straw houses belonging to the neophytes and left. They sailed away and never returned (Bancroft 1966).

Following Bouchard's attack at San Juan Capistrano, the mission padres accused Argüello of neglecting mission property, as some items went missing, and of allowing the neophytes access to the wine and brandy. Argüello denied the charges and accused the priests of covering up their own

negligence in not protecting church property in a timely manner as ordered by the government (Bancroft 1966).

Mexican Rancho Period (1821–1848)

In 1821, Mexico gained independence from Spain, and in 1848, the United States formally obtained California. The period from 1821–1848 is referred to herein as the Mexican Rancho Period. During this period, there was a change from the subsistence agriculture of the Spanish Mission Period to livestock husbandry of the large ranches, or *ranchos*, acquired by Mexican citizens through grants or by purchase from mission administrators. This change was even more distinct after 1833–1834, when mission secularization occurred.

In 1833, 12 years after gaining independence from Spain, the Mexican government's Secularization Act changed missions into civil parishes, and those natives who had inhabited areas adjacent to a Spanish Period mission were to obtain half of all mission possessions including land. However, this did not occur in most instances, and the Secularization Act resulted in the transfer of large mission tracts to politically prominent individuals rather than to local natives.

The missions were never intended to remain under permanent control of the missionaries. Missions were to have been turned over to Indian leaders within 10 years of their founding, and missionaries were to move on to found new missions in an effort to expand the Spanish colonial frontier (McCawley 1995:58). The missionaries avoided secularization for many years by claiming that the Indians were not prepared to run their own affairs, which may have been true. In August 1835, the property of Mission San Luis Rey was formally transferred to Pio Pico and Pablo de la Portilla, who had been appointed as secular commissioners to oversee the mission operations. Pico retained this position until he was replaced in 1840, but during this time used his position to dispossess the mission of lands and property (Robinson 1979; Waid 1988; Rivers 1991). In his actions, Pico demonstrated little concern for the property rights of the Indians or for their need to support themselves and their families (McCawley 1995:58).

Ysidora Pico, Pio's sister, married John Forster in 1837. Forster, an Englishman, immigrated to Mexico when he was 17. Forster became a Mexican citizen and moved to Los Angeles. In 1844, John Forster purchased Mission San Juan Capistrano and kept it as his residence. (Waid 1988; Rivers 1991). Forster adopted the life of a *ranchero* and he became known as "Don Juan" Forster.

The 22,000-ac *Rancho Trabuco* was part of San Juan Capistrano Mission lands until July 31, 1841, when it was granted by Governor Juan B. Alvarado to Santiago Argüello (Meadows 1966:136; G and A 2003). The land was then acquired by Juan Forster in 1843. The original grant was for five square leagues. Governor Pico granted an additional three square leagues in 1846 (G and A 2003). An adobe house near the lower end of Trabuco Mesa was built by missionaries from San Juan Capistrano. When the land was acquired by Argüello in 1841, the old mission buildings were used as ranch headquarters (Meadows 1966:136).

Rancho Mission Viejo was also part of the Mission San Juan Capistrano holdings. Near the mouth of Gobernadora Canyon in San Juan Capistrano, an adobe ruin existed that was thought to be the original

location of Mission San Juan Capistrano. These ruins were called *Mision Vieja*, or *La Vieja*, and are thought to have been a mission *estancia* rather than the site of the mission.

This location was called *Santa Maria Magdalena* by the Portolá expedition when they camped there on July 23, 1769 (Bolton 1971; Hoover et al. 1962:29; Meadows 1966:100). This location is just four or five miles inland of the site later selected for the founding of Mission San Juan Capistrano in 1776. Juan Bautista de Anza also camped here on January 8, 1776, while journeying from Mission San Gabriel to San Diego (Hoover et al. 1962:29). Confusion in the name arose partly due to the naming of *Rancho Mission Vieja* ("Old Mission Ranch") or *La Paz* ("Tranquility") on Mission San Juan Capistrano land where the ruined outbuildings existed.

Rancho Mission Viejo was once part of the 46,432-ac parcel located between the Mission and the Riverside County line on both sides of San Juan Canyon. On April 4, 1845, the Old Mission lands were granted to Agustin Olvera by Governor Pio Pico (Meadows 1966:116; Gudde 1998:241). Olvera sold the property to Forster, who was already grazing cattle there (G and A 2003). In the 1960s, the name was applied to a master-planned community that has incorporated as the City of Mission Viejo. As pointed out by Gudde (1998:241) in the name "Mission Viejo" there is a gender error, as the correct Spanish is *mision vieja*. However, in the name *Rancho Mission Viejo*, the gender *viejo* modifies the masculine *rancho*, and is correct. This suggests that the term *Mission Viejo* was actually first used in conjunction with *Rancho Mission Viejo* and likely does not refer to the mission itself.

The 1840s saw increased tension between the United States and Mexico. Finally, in 1846, war was declared between these two countries. Pio Pico, by then the governor of California, fled to Mexico and left Forster in charge of *Rancho Santa Margarita y Las Flores* (Waid 1988; Rivers 1991). By 1847, the United States had established control of California. The Treaty of Guadalupe Hidalgo formally ended hostilities.

The history of the *Rancho San Mateo* is not clear. Englehardt (1998:151) mentions that by January 1842, *Rancho San Mateo* had been sold to private individuals and ceased to exist.

American Period (1848–Present)

As during the previous Mission Period, cattle ranching continued to be a highly profitable enterprise, especially for several years following the California Gold Rush of 1849, due to the massive influx of immigrants (Cleland 1952:102–108; Liebeck 1990:2–3).

Following the end of hostilities between Mexico and the United States, the United States officially obtained California in the Treaty of Guadalupe Hidalgo on February 2, 1848 (Cleland 1962:xiii). In 1850, California was accepted into the Union of the United States, mainly due to the population increase created by the Gold Rush of 1849. In the years immediately following the United States' acquisition of California, the cattle industry reached its greatest prosperity. Mexican Period land grants had created large pastoral estates in California, and a high demand for beef during the Gold Rush led to a cattle boom that lasted from 1849 to 1855. In 1855, however, the demand for California beef began to decline as a result of sheep imports from New Mexico, cattle imports from the Mississippi and Missouri Valleys, and the development of stock breeding farms. When the beef market collapsed, California ranchers were unprepared. Many had borrowed heavily during the boom, mortgaging their

land at interest rates as high as 10 percent per month. The collapse of the cattle market meant that many of these ranchos were lost through foreclosure, while others were sold to pay debts and taxes (Cleland 1952:108–114). Nature also conspired to force economic change. During the winter of 1861–1862, a disastrous series of floods occurred in California, followed by two years of drought (Cleland 1952:130–131).

The drought of the 1860s was a turning point in the economic history of Southern California. The era of the great cattle ranchos ended, and many of the landowners who survived the collapse of the cattle industry were forced to sell their property due to the drought.

Pico returned to California, became a United States citizen, and served on the City Council of Los Angeles. However, Pio Pico was a gambler and had a large amount of debt. He borrowed money from Forster. In 1864, Forster offered to pay Pico \$14,000 and assume his debts if Pico would sell *Rancho Santa Margarita y Las Flores* to Forster. Juan Forster purchased *Rancho Santa Margarita y Las Flores* in 1864 from Pio Pico and his brother Andrés (Hoover et al. 1962:48). Forster moved out of Mission San Juan Capistrano, which had been returned to the Catholic Church through a bill signed by President Lincoln and settled into the ranch house on Rancho Santa Margarita (Hebert 1961; Waid 1988).

After Forster's death in 1882, Forster's heirs sold the land to James C. Flood for \$457,000. The property was managed by Richard O'Neill with the agreement that he would work off half ownership of the ranch at \$500 a month as resident manager. Born in Ireland in 1824, Richard O'Neill had come to America with his parents in 1825. O'Neill's father was a butcher and the younger O'Neill picked up the trade. During the Gold Rush, Richard O'Neill came west. Failing to find gold, he settled in San Francisco and set up shop as a butcher. As circumstances would have it, James C. Flood set up a saloon with his partner William O'Brien next door to Richard O'Neill's butcher shop and purchased meat from O'Neill. The three became close friends. The saloon and butcher shop were located near the Mining Exchange. Taking advantage of conversations with brokers who came into the saloon, Flood and O'Brien invested in the Comstock Lode in Nevada.

Using their fortune, Flood and O'Brien bought a cattle ranch in the San Joaquin Valley. O'Neill was asked to manage the ranch for them. Because of O'Neill's experience in buying cattle, the ranch was very successful. O'Neill decided to try his own hand at ranching. He scouted out prospective properties in Southern California. It was after Forster's death that Richard O'Neill was able to buy ownership of the rancho as resident manager in partnership with Flood.

In 1907, James L. Flood, son of the late James C. Flood, transferred half title of the property to O'Neill (Sleeper 1988). James L. Flood leased a portion of the land to Henry Magee, a farmer and rancher in the San Luis Rey Valley (Pourade 1969). In 1923, the sons of Flood and O'Neill, James L. Flood and Jerome O'Neill, formed the Santa Margarita Company. The company was dissolved in 1939. Jerome O'Neill died shortly thereafter. His heirs included his sister, Mary O'Neill Baumgartner, and his brother, Richard Jr. In 1940, it was Richard O'Neill, Jr., who obtained ownership of the northern portion of the rancho, *Rancho Mission Viejo* and *Rancho Trabuco*, while Mary Baumgartner and the Floods obtained ownership of the southern portion, *Rancho Santa Margarita y Las Flores*.

In 1931, the United States government became interested in building an emergency runway in the region. The Henry Magee family, living in the Las Flores Ranch House, had leased some of the land

(Baumgartner 1989), and a runway was established southwest of the Ranch House. In 1941, the United States government purchased 9,000 ac of the San Diego property in order to establish a Naval Ammunition Depot. In 1942, under the Second War Powers Act, the Marine Corps acquired the property in San Diego County and established Camp Joseph H. Pendleton on what was once the 90,000-ac *Rancho Santa Margarita y Las Flores* (Sleeper 1988). All of the former *Rancho Santa Margarita y Las Flores* south of Orange County was purchased by the United States government for \$4.25 million (Hines and Rivers 1991).

The lands occupied by the Rancho Mission Viejo and Rancho Trabuco continue to be held by the O'Neill family. The land has been primarily used for grazing cattle, with some areas used for dry farming. Sand and gravel operations occur in the San Juan Creek basin (G and A 2003).

CHAPTER VI: FIELD METHODS

The project area, exclusive of the Donna O'Neill Land Conservancy and Camp Pendleton, has been surveyed by two previous large scale surveys since 2000. Most of the land within the boundaries of the Rancho Mission Viejo property was surveyed by ARMC during a survey to document the archaeological resources within the Rancho Mission Viejo property (Demcak 2000a). Furthermore, all SOCTIIP alignments that were proposed in 2000 and 2001 were surveyed by G and A during its preparation of the Phase I Archaeological Inventory for the SOCTIIP (G and A 2003).

The portions of the project that are within the Conservancy and Camp Pendleton were surveyed by LSA during surveys performed to cover areas not included in previous endeavors to document archaeological resources that fall within the boundaries of the currently preferred SOCTIIP alignment. The methods and results of the O'Neill survey are incorporated into this ASR; the methods and results of the Camp Pendleton Survey are contained in Fulton et al. (2005) and summarized in this ASR. The survey coverage of all these endeavors is depicted on Map 3, Survey Coverage, in Chapter IX, and the methods employed by each survey are summarized below.

ARMC. This pedestrian survey was conducted between March 13 and June 1, 2000, and covered approximately 25,000 ac of the RMV property. This survey included all areas of the northern portion of the A7C-FEC-M from the interchange at Oso Parkway to the northern boundary of the Conservancy. In addition, it also included a small portion east of Pico Avenue, north of the Orange/San Diego County Line. In addition to surveying for new archaeological sites, ARMC personnel attempted to relocate all previously identified cultural resources within the Ranch boundaries. According to ARMC:

“The surveyors walked 5-m transects in most areas, shortening to one m or less on recorded sites or when conducting a close inspection of a newly discovered site. Transects followed the general direction of the ridgelines and varied north-south or east-west in open area, sometimes repeating in the reverse direction if the terrain and visibility warranted such coverage. Single surveyors walked narrow ridgelines or small drainages, while groups of surveyors covered wider areas. Fully-disturbed area, including re-vegetation zones, citrus and avocado groves, SMWD Water Treatment Plant, ranch headquarters and related structures, and sand and gravel plants were not surveyed due to the extreme levels of disturbance.”

As would be expected in a survey of this size, conditions and ground visibility encountered varied from area to area. Within Chiquita Canyon, much of the ground had been recently disced, and the visibility was excellent. However, within some portions of Chiquita Canyon area, vegetation limited visibility to 10–20 percent. In the remaining canyons south and east of Chiquita, grassland-herbland vegetation in the bottom of the drainages allowed visibility ranging from 30–50 percent, while scrub and other vegetation on the low hills and peaks surrounding the drainages allowed only 10–20 percent visibility. In addition, the narrow elevated ridgelines in the interior of the survey both north and south of Ortega Highway were often choked with vegetation that limited close inspection of the ground.

G and A: This pedestrian survey was conducted between April 16, 2000 and May 8, 2001. According to its report, the survey consisted of:

“...a pedestrian survey of undeveloped landforms underdeveloped and vacant landforms within 0.40 to 0.80 km (0.25 to 0.5 miles) of the centerlines of the build alternatives and a cursory examination of recorded site locations in developed areas and along arterial corridors. In undeveloped areas where new corridors are proposed, survey reference points were identified using detailed aerial photographs.”

However, graphics LSA obtained from G and A that were drawn during its field surveys indicate that the surveys were primarily confined to the proposed areas of direct impact only, with no buffer (see Map 3).

In addition, G and A personnel attempted to relocate all previously identified cultural resources within the potential disturbance limits of the SOCTIIP alternatives. Previously recorded sites were attempted to be relocated using handheld global positioning system (GPS) units with the UTM coordinates for the sites loaded into them. In addition, the sites were plotted on 1:200 scale aerial maps, as individual bushes and trees could be seen on the aerials; they felt that there was a high degree of confidence in relocating the sites.

Where feasible, the G and A surveyors walked in transects spaced at approximate 10–15 m intervals that were oriented in such a way to easily cross the landform. Some areas could not be accessed because of steep terrain and some could not be accessed because of thick vegetation. In fact, G and A report that some areas had such thick vegetation that the ground surface could not be directly observed.

LSA: LSA surveyed the Donna O’Neill Land Conservancy between June 7 and June 11, 2004, and the Camp Pendleton portion between March 17 and 23, 2005. Much of the Conservancy and Camp Pendleton segments of SOCTIIP cover terrain comprised of narrow ridges, steep slopes, canyons, and knolls, most of which are covered by dense CSS, chaparral, grasses, and introduced species. As such, survey methods for both study areas employed similar methodologies and techniques. The project area was surveyed by crews of between two and four archaeologists spaced no more than 15 m apart. Transects were typically oriented with the topography of the survey area. Generally this entailed surveying up primary ridges and down secondary ridges to canyon bottoms and then down canyon to near the starting point. Steep slopes were not systematically surveyed, but rather were examined from either above or below for the presence of rock shelters, overhangs, and historic features. LSA downloaded the boundaries of each survey into the GPS units to insure complete coverage. In addition, LSA downloaded the coordinates of previously recorded sites within the survey limits into handheld GPS units to assist the surveyors in determining when they were within the boundaries of that site. The GPS units were also used to record the location of newly discovered finds, including isolates, site limits, and artifacts within the sites.

Within the Conservancy, the study area consisted of the disturbance limits of the three proposed alignments that passed through the Conservancy at that time (FEC-M; FEC-W; and the A7C-FEC-M) and a buffer area that extended from the alignment centerline to either the Conservancy boundary or

one-quarter mile, whichever was encountered first. The total area encompassed by the survey area included 801 ac. For the Camp Pendleton segment, the same three alternatives follow a common alignment and the study area consisted of the disturbance limits and a 300-foot buffer area surrounding the disturbance limits. The total area included in this survey area was 873 ac. All areas surveyed within the Conservancy and Camp Pendleton included the area of the currently preferred MGA.

Ground visibility was very poor over the majority of both study areas and was usually only satisfactory along the ridge crests, roads, trails, and firebreaks that traverse the study area. Photographs showing typical survey terrain and vegetation are included in Chapter X. One portion of the Camp Pendleton study area was a plowed agricultural field containing previously recorded site CA-SDI-13,325. Another was an area that had been used as an agricultural field in the past, and an attempt was being made to revegetate with native plants. Visibility here was excellent and is where a new site was documented (CA-SDI-17544); cultural material was readily visible.

When an artifact was encountered, the area in the vicinity of the find was intensively examined at 1–2 m intervals in order to locate any and all additional cultural material that may be in association. A 30 m radius beyond all sites and isolated finds was examined to ensure that a site and isolate boundaries were accurate. All site constituents and isolated finds were mapped by handheld GPS units with approximately 4 m accuracy. Sites and isolates were recorded on California DPR 523A series forms. Site updates were completed for previously documented sites that were relocated.

CHAPTER VII: STUDY FINDINGS AND CONCLUSIONS

RANCHO MISSION VIEJO PORTION

This survey resulted in the discovery of 19 new prehistoric sites and five historic sites. Of these, three prehistoric sites (CA-ORA-1559, CA-ORA-1560, and CA-ORA-1561) are in the current APE of the MGA. In addition, four previously recorded sites were relocated within the current MGA or 300-foot buffer (CA-ORA-362, CA-ORA-363, and CA-ORA-913, CA-ORA-1106) and five previously recorded sites were unable to be relocated within the MGA or 300-foot buffer (CA-ORA-653, CA-ORA-657, CA-ORA-658, CA-ORA-916, and CA-ORA-921/1127). The previously recorded sites were unable to be relocated because no artifacts were observed on the surface of the mapped location. However, this does not mean that the sites no longer exist, as they may have a subsurface component that was beyond the scope of the cursory attempt to relocate sites. There were numerous other sites that ARMC was also able to locate as well as those that it was unable to locate; however, these all fell outside the currently proposed MGA and 300-foot buffer and are thus not part of this study.

G AND A SOCTIIP SEGMENTS

During the G and A surveys no new archaeological sites were located. However, four isolated prehistoric artifacts were located consisting of flaked and ground stone artifacts. Only one of these (SOCTIIP 2001 iso #1, a single rhyolite core) is within the current project limits. G and A was able to relocate nine previously recorded sites (CA-ORA-912, CA-ORA-914, CA-ORA-915, CA-ORA-920, CA-ORA-921/1127, CA-ORA-1106, CA-ORA-1559, and CA-ORA-1560) that fall within the current MGA ROW, or the 300-foot buffer. G and A was unable to relocate three previously recorded sites (CA-ORA-916, CA-ORA-917, and CA-ORA-1561) within the APE of the MGA because no artifacts were observed on the surface of the mapped location. However, this does not mean that the sites no longer exist, as they may have a subsurface component that was beyond the scope of their cursory attempt to relocate sites. G and A did not attempt to relocate four sites that fell within the survey area (CA-ORA-362, CA-ORA-363, CA-SDI-4412, and CA-SDI-13324). G and A also discovered that two sites within the MGA had been destroyed by development (CA-ORA-1168 and CA-ORA-1175). There were numerous other sites that G and A was also able to locate as well as those that they were unable to locate; however, these all fell outside the current proposed MGA and 300-foot buffer and are thus not part of this study. In addition, there were several existing sites that lay within the MGA or 300-foot buffer that G and A did not attempt to relocate, as they were outside of any proposed alignments at the time of the surveys.

DONNA O'NEILL LAND CONSERVANCY SEGMENT

LSA was able to relocate eight previously recorded sites (CA-ORA-917, CA-ORA-920, CA-ORA-1021, CA-ORA-1023/CA-ORA-1024, CA-ORA-1028, CA-ORA-1021, CA-ORA-1180 and CA-ORA-1188) within the survey area. Of these, only three (CA-ORA-917, CA-ORA-920 and CA-ORA-1028) are currently within the MGA or 300-foot buffer. LSA also identified one new prehistoric site

(CA-ORA-1640) and eight isolates (30-100361 through 30-100368); of these, only four of the isolates (30-100364, 30-100366, 30-100367 and 30-100368) are in the current MGA or 300-foot buffer.

LSA was unable to relocate three previously recorded archaeological sites (CA-ORA-1186, CA-ORA-1187 and CA-ORA-1189) and three isolated finds (30-100091, 30-100092 and 30-100098) within the survey area. None of these sites or isolates is in the MGA or 300-foot buffer. Given the sparse nature of the of the finds and the passage of time since they were recorded, it is not surprising that artifacts that were visible in 1988 might be covered by vegetation, buried, or collected.

CAMP PENDLETON SEGMENT

LSA field crews surveyed the project APE and buffer area between March 17 and 23, 2005. The survey occurred near the end of one of the wettest rainy seasons on record, and the tall and dense vegetation reflected the abundant rainfall that had occurred. The northern approximately 5.5 miles of the alignment (north of SMAD) traverses an area characterized by steep slopes, narrow finger ridges, and knolls. This area is blanketed by an extremely dense CSS community, with disturbed areas dominated by dense mustard, fennel, artichoke thistle, tree tobacco, and seasonal grasses. Ground visibility was generally limited to areas such as dirt roads, fire breaks, off-highway vehicle (OHV) trails, animal trails, and power line pads. The areas south and east of SMAD have been extensively altered by road and highway construction, Southern California Edison developments, utility installations, and military base construction activities. The only relatively undisturbed areas in this portion of the alignment are the agricultural fields in the vicinity of site CA-SDI-13325.

The LSA survey documented a total of 19 previously unrecorded cultural resources. Four are archaeological sites (37-026821, 37-026827, CA-SDI-17544, and CA-SDI-17545), nine of the resources (30-100360, and 37-026828 through 37-026835) are isolated finds consisting of one or two prehistoric artifacts, and six of the resources (37-026809, 37-026820, 37-026823, 37-026824, 37-026825, and 37-026826) are extant historic objects or structures. Of the 19 new resources documented during the survey, 14 are within the project APE. The remaining five resources (37-026828, 37-026829, 37-026834, 37-026835, and CA-SDI-17545) were encountered while accessing the project survey area and are located outside the current MGA and 300-foot buffer area.

LSA was able to relocate four of the previously recorded sites (CA-SDI-1074, CA-SDI-1075, CA-SDI-4412 and CA-SDI-13325) and unable to relocate two of the previously recorded sites (CA-SDI-6692 and CA-ORA-362) that fall within the MGA or 300-foot buffer. LSA was unable to relocate the two previously recorded sites because no artifacts were observed on the surface of the mapped location. However, this does not mean that the sites no longer exist, as they may have a subsurface component that was beyond the scope of the cursory attempt to relocate sites. LSA did not attempt to relocate site CA-SDI-13324 that is currently within the MGA, as at the time of LSA's surveys, it was not within any proposed alignment.

SITE DESCRIPTIONS FOR ALL ARCHAEOLOGICAL RESOURCES WITHIN THE APE OF THE MGA

A total of 35 archaeological sites and eleven isolates have been identified as being in the APE of the MGA. The location of each site is depicted on Map 4. The individual site records and updates for each of these are attached in Chapter XI, Site Records, at the end of this ASR. The site history for each site is discussed below

- **CA-ORA-362** was originally recorded by Riddell (1972a) as one core and a scatter of debitage. The size was estimated to be 100 ft [30 m] north/south by 50 ft [15 m] east/west on the 200–225 foot contour. Riddell said the site was a restricted use site; however, the full extent could not be determined since the site area was obscured by grass. Following a survey of the area by Hatheway and McKenna (1988a), an update of the site was completed to show that the site contained a scatter of ground stone and flake stone artifacts containing 1 mano, 2 metates, 1 hammerstone, 1 fire-affected rock, 7 core tools, and 22+ pieces of debitage. The size was increased to 173 m north/south by 77 m east/west at an elevation of 200–225 ft. Hatheway and McKenna listed the site as a relatively dense scatter of artifacts. G and A completed a boundary test (Toren 1997) that uncovered additional artifacts on the surface as well as the subsurface to depths of up to 40 cm. Based on its investigation, G and A believed the site was smaller than that mapped by Hatheway and McKenna, and possibly located further to the south. As G and A tested only the portions of the site that would be potentially impacted by the Foothill-South corridor, they recommended that if the project plans changed to include areas not tested, the new areas within the mapped boundaries be tested as well. ARMC located two flakes on site during its survey of RMV (Demcak 2000a).
- **CA-ORA-363** was originally recorded by Riddell (1972b) as containing two cores and a hammerstone. The size was estimated at 150 ft [45 m] in diameter on the 200-foot contour. Riddell interpreted the site as being of limited extent and complexity. An update of the site by Cooley and Grove (1980) increased the size of the site to 50 m by 75 m with a depth of up to 30 cm and contained a lithic scatter with ground stone. They indicated that up to a third of the original site area had recently been used as a fill borrow area and had been removed. When updated by Hatheway and McKenna (1988b), the site size was increased to 190 m north/south by 140 m east/west. Hatheway and McKenna observed flakes, cores, debitage, and possibly core tools on the site. They noted severe bioturbation as well as several dirt roads passing through the site that were resulting in increased hydraulic erosion. Extended Phase I investigations by G and A in 1997 (Toren 1997) included a surface collection and 10 STPs. The Phase I work established that the site boundaries were 160 m north/south by 80 m east/west and that there was an intact subsurface component to the site (up to 60 cm below the surface), but also that there was widespread mechanical disturbance, including fill episodes. Following the Phase I testing, G and A initiated Phase II testing that included two additional STPs and four 1 x 1 units (Toren and Greenwood 1997). Size remained the same and additional flake stone artifacts were collected as well as faunal bone and one piece of marine shell. After the Phase I and II testing, G and A interpreted the site as representative of a temporary use site with no explicit evidence of occupation, function, or age. They believed the data potential for the site was limited, lacking in datable material and temporally diagnostic artifacts and that further testing would only provide redundant data. Thus they believed the site was not eligible for listing in the National Register; however, this was not submitted to the SHPO for concurrence. ARMC located two cores and three flakes during its survey of RMV; it was also noted that the site had been mostly been graded away (Demcak 2000a).

- **CA-ORA-653** was originally recorded by Peak (1973a) as containing flakes and a single mano. The size could not be determined, but was estimated at 200 x 300 ft. Peak noted that the site had been bulldozed and might be the remnants of a major archaeological resource. When ARMC visited the site during its survey of RMV, it noted numerous piles of dirt and no artifacts at the mapped location of the site. (Demcak 2000a). ARMC tested this site in 2001 by excavating two units to 30 cm (Demcak 2002). The testing program resulted in no artifacts from the surface or the subsurface. Based on the results of testing and evaluation, Demcak (2002) determined that the site did not possess the potential to answer research questions and was thus not eligible for the National Register. In 2004, the SHPO concurred that the site was not eligible for listing in the National Register (SHPO 2004).
- **CA-ORA-657** was originally recorded by Peak (1973b) as small lithic scatter containing a single core tool and a single flake. The size was listed as 15 x 20 ft at an elevation of 420 ft. It was interpreted as an occasional use site. When ARMC visited the site during its survey of RMV, it noted numerous piles of dirt ringing the mapped location and no artifacts (Demcak 2000a). ARMC tested this site in 2001 by excavating two units to 30 cm (Demcak 2002). The testing program resulted in no artifacts from the surface or the subsurface. Based on the results of testing and evaluation, Demcak (2002) determined that the site did not possess the research potential to answer research questions and was thus not eligible for the National Register. In 2004, the SHPO concurred that the site was not eligible for listing in the National Register (SHPO 2004).
- **CA-ORA-658** was originally recorded by Peak (1973c) as a single core tool, with the possibility of more artifacts being obscured by vegetation. The size was listed as 40 x 35 ft at an elevation of 580 ft. When ARMC visited the site during its survey of Ranch Mission Viejo, no artifacts were observed at the mapped location (Demcak 2000a). ARMC tested this site in 2001 by excavating two units to 30 cm (Demcak 2002). The testing program resulted in no artifacts from the surface or the subsurface. Based on the results of testing and evaluation, Demcak (2002) determined that the site did not possess the potential to answer research questions and is thus not eligible for the National Register. In 2004, the SHPO concurred that the site is not eligible for listing in the National Register (SHPO 2004).
- **CA-ORA-912** was originally recorded by Grove and Cooley (1980a) as a small scatter of cores, core tools, flake tools, and hammerstones. It was mapped as being 50 m by 75 m in size on the 320-foot contour. An update of the site by Hatheway and McKenna (1988c) resulted in the observation of additional lithic tools, cores, hammerstones, and debitage. In addition, they increased the size of the site to 140 m by 70 m. During a survey for the SOCTIIP in 2000 to 2001, G and A observed a multidirectional chert core (G and A 2003).
- **CA-ORA-913** was originally recorded by Grove and Cooley (1980b) as a light flake and artifact scatter consisting of cores, core tools, debitage, and a single flake tool. The size was listed as 50 m north/south by 75 m east/west at an elevation of 320 ft. A major disturbance noted was a slump that removed a portion of the knoll and exposed artifacts to a depth of 15 cm. It was interpreted as a light flake and artifact scatter. The site was updated in Hatheway and McKenna (1988d) as containing three flaked tools and one primary flake. The size remained the same. ARMC located one flake during its survey of RMV (Demcak 2000a).
- **CA-ORA-914** was originally recorded by Grove and Cooley (1980c) as a chipped stone and ground stone scatter that contained large lithics and cobbles. Artifacts observed included manos, metates, chipped stone tools, hammerstones, and scrapers. The size was given as 75 m x 75 m on

the 320-foot contour. An update of the site by Hatheway and McKenna in 1988 increased the size to 150 m northwest/southeast by 50 m northeast/southwest (Hatheway and McKenna 1988e). In addition, they observed 3 metates, 2 manos, 13 fire-affected rocks, 10 hammerstones, 32 cores/core tools, and 35 (+) pieces of debitage. They also observed features consisting of two groundstone boulders with associated cobble tool clusters, two cores/hammerstones, and another miscellaneous boulder. Brian F. Mooney and Associates completed a surface collection and subsurface testing program for the site (Shackley et al. 1989). This program changed the size of the site to 155 m northwest/southeast by 45 m northeast/southwest and resulted in the discovery of 28 surface artifacts (both chipped stone and ground stone tools). Shackley et al. (1989) described this site as lacking data potential to warrant inclusion in the National Register; however, this recommendation was not submitted to the SHPO for concurrence. During a survey for the SOCTIIP in 2000 to 2001, a flake, two hammerstones, and a fragment of marine shell were observed in a disturbed context by G and A (G and A 2003).

- **CA-ORA-915** was originally recorded by Grove (1980a) as a small chipped stone scatter that contained one metate fragment and nine pieces of debitage on a 50 m x 60 m area on the 320-foot contour. An update of the site by Hatheway and McKenna in 1988 revealed five flaked tools/cores and one fire-affected rock in the same dimensions as originally described (Hatheway and McKenna 1988f). Brian F. Mooney and Associates completed a surface collection and subsurface testing program for the site in which three flakes and one core were recovered from the subsurface (Shackley et al. 1989). Shackley et al. (1989) described this site as lacking data potential to warrant inclusion in the National Register; however, this recommendation was not submitted to the SHPO for concurrence. During a survey for the SOCTIIP in 2000 to 2001, G and A located a bedrock milling slick on site (G and A 2003).
- **CA-ORA-916** was originally recorded by Grove (1980b) as a lithic and artifact scatter containing large flake tools, cores, and a hammerstone. It was mapped as being 200 m east/west by 75 m north/south at an elevation of 320 ft. The site was updated by Hatheway and McKenna (1988g) and increased to 400 m east/west by 200 m north/south in size. Hatheway and McKenna noted fire-affected rocks, flakes, and one possible hammerstone. It was interpreted as a lithic scatter. The site was tested by Mooney and Associates (Shackley et al. 1989), and 13 artifacts were recovered from the surface. It believed that the site lacked sufficient data potential to justify a data recovery program and thus was ineligible for listing in the National Register; however, it did obtain concurrence from the SHPO. The site was tested a second time by G and A (Romani et al. 1997) and a complete pestle, 19 flakes, a cobble tool, a few fragments of animal bone, and a few fragments of shell were recovered. Only five of the artifacts were recovered from the surface, and there was no evidence found for an intact subsurface deposit (G and A 2003). G and A also believed that the site was ineligible for listing in the National Register because it lacked sufficient data (Romani et al. 1997). However, it did obtain concurrence from the SHPO on the ineligible status of the site. During the ARMC survey of RMV, it was noted that up to 70 percent of the site had been graded away by a housing development and the realignment of the TRW access road (Demcak 2000a).
- **CA-ORA-917** was originally recorded by Grove and Cooley (1980d) as a chipped stone and artifact scatter containing hammerstones, scrapers, cores, choppers, and a metate. They noted that all the artifacts were found in a disturbed context within a 600 m east/west by 25 m north/south area. An update by Hatheway and McKenna described the site as a lithic scatter with flakes, hammerstones, fire-affected rock, and manos within a smaller area than originally mapped, 300 m

east/west by 50 m north/south (Hatheway and McKenna 1988h). During a survey for the SOCTIIP in 2000 and 2001, G and A did not observe any artifacts at the mapped location of this site (G and A 2003). During the LSA survey of the Conservancy portion of the project, a single core was observed.

- **CA-ORA-920** was originally recorded by Grove and Cooley (1980e) as a lithic scatter that contained metate fragments, a flake scraper, and fired lithics in a 400 m northeast/southwest by 20 m northwest/southeast on the 600-foot contour. An update by Hatheway and McKenna in 1988 revealed six pieces of debitage, two flaked cores/tools, one mano, and one metate fragment and increased the size of the site to 531 m northeast/southwest by 50 m northwest/southeast (Hatheway and McKenna 1988i). Brian F. Mooney and Associates tested the site and collected seven flakes from the surface, all within a dirt road that traverses the site, and nothing from the subsurface to 40 cm (Shackley et al. 1989). During a survey for the SOCTIIP in 2000 and 2001, G and A observed one flake within the road that traverses the site (G and A 2003). During the LSA survey of the Conservancy portion of the project, a fragment of a basalt bowl was observed.
- **CA-ORA-921/1127** was originally recorded as two separate sites that were discovered to be a single site during construction monitoring. CA-ORA-921 was originally recorded by Grove and Cooley (1980f), and CA-ORA-1127 was originally recorded by Brown and Bissell (1988).

CA-ORA-921 was first recorded as a buried site that contained ceramic sherds, shell animal bone, chipping debris, and fire-affected rock in a 250 m north/south by 150 m east/west area on the 240-foot contour (Grove and Cooley 1980f). Depth was estimated to be up to 50 cm with an additional 30 cm of sterile soil overlying the deposit (Cooley and Cottrell 1980). An update was filed by Brown and Bissell (1988) stating that the site was essentially destroyed. This was based on a local informant stating that a flood in 1980 had caused a great deal of damage to the vicinity.

CA-ORA-1127 was first recorded as a small specialty use area containing chipping waste, cores, flakes, and flake tools within a 50 m x 50 m area on the 160-foot contour with no apparent depth (Brown and Bissell 1988). It was mapped as occurring in an area between previously recorded sites CA-ORA-912 and CA-ORA-921. Prior to construction of the Santa Margarita Water District South County Pipeline, ARMC tested the site via a controlled surface collection and excavation with only minor artifacts recovered (Jones 1991). Jones (1991) recommended that the excavations for the pipeline be monitored and that the pipeline be routed between the mapped locations of CA-ORA-921 and CA-ORA-1127. During monitoring for the pipeline, a very deeply buried cultural deposit was uncovered in the area between CA-ORA-921 and CA-ORA-1127 in an area that was previously thought to not contain cultural resources (Jones 1991). This deeply buried deposit between the two previously recorded site locations was interpreted as evidence that the two sites actually formed a continuous deposit (Jones 1991).

CA-ORA-921/CA-ORA-1127, with the new combined dimensions 315 m northeast/southwest by 140 m northwest/southeast, was tested by G and A as part of Phase II investigations associated with National Register eligibility studies for the Foothill Transportation corridor-South (Romani et al. 1997). This testing involved excavation of trenches to determine depth of the overburden, removal of the overburden to just above the cultural layer, and excavation of STPs and units. Material recovered included flake and ground stone tools, beads, pottery, flakes, bone, and shell. In addition, a human burial was found beneath a stone cairn (Romani et al. 1997). Romani et al. (1997) believed that the site represented a large multi-component residential site dating from A.D. 520 to A.D. 1720 (Middle Period through the Protohistoric). Based on the long period of

occupation and the possible association with Mission Period, Romani et al. (1997) also believed the site was eligible for the National Register. However, the recommendation that the site is eligible for the National Register has not been officially submitted to the SHPO for concurrence. During the ARMC survey of RMV, no artifacts were observed at the mapped location of the site (Demcak 2000a).

- **CA-ORA-1028** was originally recorded in 1983 and described as a large camp or small village containing metates, manos, hammerstones, cores, numerous flakes, and chipped stone tools. (Cottrell et al., 1983a). In 1988 a mano, 2 metate fragments, 10 cores/tools, and 9 pieces of debitage were documented within greatly expanded site boundaries (Hatheway and McKenna 1988j). During the LSA survey of the Conservancy portion of the project, three loci were identified containing artifacts within the enlarged 1988 site boundaries. Locus A corresponds to the original 1983 site boundaries and extends from the northeast side of Peak 708 down the North Ridge Trail to the fence line, which marks the northern boundary of the Conservancy. Locus A contained five manos, eight flakes, one utilized flake, and one hammerstone. Locus B is located approximately 75 m southeastward on the North Ridge Trail from the fence line and contains seven igneous flakes. Locus C is located approximately 80 m eastward on the trail from Locus B and is situated in a wide flat grassy area on the ridgeline. The area is a likely location for a site; however, only a single granitic mano was identified immediately south of the trail. Vegetation and the sandy sediments may have obscured additional artifacts.
- **CA-ORA-1106** was originally recorded by ARMC in 1986 as being a large lithic scatter of chipped and ground stone artifacts in a 30 m east/west by 100 m north/south area on the 560-foot contour with unknown depth (Demcak 1986). The site was tested by G and A with 10 STPs up to 60 cm deep. It collected hammerstones, a core, a mano, a ground stone fragment, flakes, and debitage from the surface, but nothing from the subsurface. It also changed the size to 20 m east/west by 230 m north/south (Toren 1997) Toren believed the site to be of limited data potential and that Phase II excavations were not warranted. However, Toren (1997) did not submit the site as ineligible for listing in the National Register findings to the SHPO for concurrence. During the ARMC survey of RMV, the site area had been recently disced and a moderate scatter of ground and flake stone artifacts was observed that included four manos, four metate fragments, two flakes, and a core tool and a scraper (Demcak 2000a). During a survey for the SOCTIIP in 2000 and 2001, G and A were able to relocate this site and observed two fragments of a vesicular basalt bowl, a complete mano, two mano fragments, and a slab metate (G and A 2003).
- **CA-ORA-1168** was originally recorded by Hatheway and McKenna in 1988 as a sparse lithic scatter containing cores, flakes, ground stone fragments, and fire-affected rocks in a 44 m northwest/southeast by 3 m northeast/southwest area on the 475-foot contour (Hatheway and McKenna 1988k). Brian F. Mooney and Associates placed a single 1 x 1 m unit to 20 cm in depth, where a single flake on the surface excavation was observed to 20 cm with no subsurface recovery (Shackley et al. 1989). Shackley et al. (1989) described this site as lacking data potential to warrant inclusion in the National Register; however, this recommendation was not submitted to the SHPO for concurrence. During the survey for the SOCTIIP in 2000 to 2001, G and A noted that a housing development in the area destroyed the site (G and A 2003).
- **CA-ORA-1175** was originally recorded by Hatheway and McKenna in 1988 as a lithic scatter containing one basalt tool and two flakes in a 20 m x 20 m area on the 300-foot contour (Hatheway and McKenna 1988l). Brian F. Mooney and Associates tested the site and collected a few surface artifacts and nothing from the subsurface to 20 cm (Shackley et al. 1989). Shackley et

al. (1989) described this site as lacking data potential to warrant inclusion in the National Register; however, this recommendation was not submitted to the SHPO for concurrence. During the survey for the SOCTIP in 2000 to 2001, G and A noted that a housing development in the area destroyed the site (G and A 2003).

- **CA-ORA-1559** was discovered by ARMC during a survey of Rancho Mission Viejo in 2000 (Demcak 2000b). It was described as being a moderate scatter of ground and chipped stone artifacts on the eastern side of Chiquita Canyon. They estimated the size as 60 m east/west by 50 m north/south and indicated it was located on the 600–640 ft contour. At the time of their survey a ranch road cut into the eastern side of the site, and the majority of the site had been recently disced. Artifacts observed included a discoidal, red bead material, 11 manos/fragments, 3 metate fragments, a core, a flake, a hammerstone, 2 core tools, 5 scraper planes, and 2 flake tools. Based on the artifact assembly, ARMC believed that this site was an Early Millingstone base camp or village. During a survey for the SOCTIIP in 2000 and 2001, G and A observed a number of additional artifacts, including a discoidal, a hammerstone, and two core tools (G and A 2003). The site was tested by ARMC in 2001 (Demcak 2002). G and A performed a surface collection and completed two units and four STPs in which they collected cores, core tools, flakes, flake tools, hammerstones, drills, manos, metate fragments, and a discoidal at depths up to 30 cm. Based on the results of testing and evaluation, Demcak (2002) determined that the site has the potential to answer questions on chronology, subsistence, settlement, and ceremonialism among the Juaneño and is thus eligible for the National Register. In 2004, the SHPO concurred that the site is eligible for listing in the National Register (SHPO 2004).
- **CA-ORA-1560** was discovered by ARMC during a survey of RMV in 2000 (Demcak 2000c). It was described as a moderate scatter of ground and chipped stone tools. Artifacts included: nine manos/fragments, eight metate fragments, three scraper planes, four flake tools, a hammerstone, a possible feature consisting of six fragments of a schist metate, and a granitic mano. It was mapped as occupying an area of 40 m east/west by 30 m north/south on the 560–580 ft contour. Based on the assembly of artifacts and the size of the site, it is believed that the site was from the early period and may have been associated with CA-ORA-1559, located 300 ft to the southeast. During a survey for the SOCTIIP in 2000 and 2001, G and A observed a number of additional artifacts, including six milling stone fragments (from three separate artifacts), five manos, and numerous flakes (G and A 2003). G and A observed the items in a linear 75 m x 20 m plow cut and believed that these items may have been broadcast from a more localized or buried deposit in the area (G and A 2003). The site was tested by ARMC in 2001 (Demcak 2002). They performed a surface collection and the excavation of two units to depths of up to 30 cm. They collected a hammerstone, cores, flakes, flake tools, a core tool, manos, and metates. Based on the results of testing and evaluation, Demcak (2002) determined that the site has the potential to answer questions on chronology, subsistence, and settlement, and is thus eligible for the National Register. In 2004, the SHPO concurred that the site is eligible for listing in the National Register (SHPO 2004).
- **CA-ORA-1561** was discovered by ARMC during a survey of RMV in 2000 (Demcak 2000d). It was described as a sparse lithic scatter on the eastern side of Chiquita Canyon that contained two discoidals and a hammerstone on the surface. The site was mapped as occupying an area 30 m east/west by 5 m north/south at an elevation of 720 ft. Depth was unknown. They believed the site was a special purpose camp (probably ceremonial) associated with both CA-ORA-1559 and CA-ORA-1560, both located approximately 1,200 ft to the southwest. During the SOCTIIP survey in 2000 and 2001, G and A did not observe any artifacts at the mapped location of this site (G and A

2003). The site was tested by ARMC in 2001 (Demcak 2002). It performed a surface collection and excavated four STPs up to 20 cm deep. It collected a single plano-convex tool from the surface and added the two discoidals collected by Demcak (2000a) to the collection. Nothing was recovered from the subsurface. Based on the results of testing and evaluation, Demcak (2002) determined that the site did not possess the research potential to answer research questions and is thus not eligible for the National Register. In 2004, the SHPO concurred that the site is not eligible for listing in the National Register (SHPO 2004).

- **CA-SDI-1074** is in the physiographic location of Kroeber's (1925) ethnohistoric village of *Hechmai*. It was first recorded by Malcolm Rogers as site W-294 sometime between 1939 and 1945. It was first officially recorded as CA-SDI-1074 by James (1964a). James (1964a) described the site as a relatively narrow shell midden measuring 300 ft (91 m) across and 14 inches (35 cm) deep. A highway salvage excavation in 1965 by Dewey S. Buck was conducted that consisted of 42 2 x 2 m units excavated in 20 cm levels through one-fourth-inch mesh (Chase 1975). Chase (1975) reports that an extensive assemblage of artifacts was collected during the salvage, including: 34 ceramic sherds from three pottery vessels, 3 sherds from red or orange slipped ware, 1 piece of glazed ware, 1 ceramic bead, 240 general hand tools composed of basalt beach cobbles, 81 small projectile points, 3 manos, 15 mortars, 135 shell beads (mostly discs), 57 abalone fish hooks, 53 species of shellfish, and numerous fish bones. The site was updated by Ogden Environmental and Energy Services (Ogden) in 1992 (Pignolio et al. 1992), when they noted fire-affected rock and 200 pieces of marine shell in a 500 m north/south by 150 m east/west area. The site was further tested by Singer et al. (1993) and Byrd et al. (1995). Both these tests yielded extensive collections of marine shell, fish and mammal bone, chipped and ground stone artifacts, and worked shell and bone artifacts. The most recent site update describes the site as a surface scatter of marine invertebrates, artifacts, and fire-affected rock in a 560 m east/west by 335 m north/south area (O'Neill 1994). The updated site record notes that the central portion of the site has been destroyed by the construction of PCH and the I-5, and the northern portion has been used as an informal landfill, with piles of discarded construction debris. The highest concentration of surface artifacts was noted as lying on the southern portion of the site, south of I-5, while the northern portion has only a low density of surface density. Byrd et al. (1995) believes that despite extensive construction in the area of the site, the site is eligible for the National Register. However, this recommendation was not submitted to the SHPO for concurrence. A site visit by LSA indicates that the site appears to have been largely destroyed by highway and road construction, Southern California Edison facilities, and the Camp Pendleton percolation ponds. A single igneous flake was observed on the shoulder of the frontage road on the south side of I-5 (Fulton et al. 2005).
- **CA-SDI-1075**. According to O'Neil (1988), this is the Juaneño geographical feature *pameva*. Several researchers hypothesize that *Panhe* and *Hechmai* were politically linked twin villages and that they encompass the entire San Mateo and San Onofre valleys and the bordering ridges next to the Pacific Ocean. CA-SDI-1075 was first encountered by Allanson and Farmer in 1950 (James et al. 1964b), but not officially recorded until 1964 by James (1964b). It was described as a "shell midden 'loaded' with stone artifacts" a 90 m area in the 50–200-foot contour. An update by Hines and Rivers (1990a) noted ten flakes, two that were retouched in a 20-meter-wide strip south of the freeway frontage road between the E. Clampus Vitus monument for Forster City and the point where the bicycle trail and frontage road diverge. The update also noted that the area was highly disturbed and the noted flakes could have been redeposited. In 1997, a site update found the site to consist of approximately 25 pieces of shell and one metavolcanic flake in a 500 m north/south by

30 m east/west area (Victorino 1997). Excavation of three STPs and examination of erosion channels recovered no cultural material (Victorino, 1997). During a survey by LSA, no cultural remains were observed north of I-5, and two possible flakes were observed in a disturbed graded area between the freeway and the frontage road on the south side of I-5 (Fulton et al. 2005).

- **CA-SDI-4412** was first recorded by Welch (1975b) as a low-density midden containing hammerstones, flakes, retouched flake, a projectile point, a core, and shell fragments in an 85 m east/west by 40 m north/south area. He noted that there were disturbances to the site, including dirt roads, asphalt fragments, and a bulldozer cut. The site was updated by Hines and Rivers (1990b), noting that the site was greatly disturbed by roads, a lifeguard station, water systems, gas pipelines, fences, foot paths, and landscaping. They increased the size of the site to 140 m northwest/southeast by 80 m southwest/northeast, and believed that it was possible that the central portion of the site was protected by heavy vegetation. Hines and Rivers (1990b) also noted that there is a historical marker on site noting the location of Forster City, a small farming community that was abandoned in the late 1890s, and all the buildings moved to other locations. During a survey by LSA, flakes and shell were observed at the site location (Fulton et al. 2005).
- **CA-SDI-6692** was recorded as a light scatter of lithic material containing two basalt cores (Cooley, 1979) in a 20-meter-diameter area at an elevation of 240 ft. Visibility was limited by heavy vegetation. The site was revisited by Hines and Rivers (1990c), but it could not be relocated. During a survey by LSA the site also could not be relocated in the mapped location (Fulton et al. 2005).
- **CA-SDI-13324** was originally recorded by Ogden in 1992 as a single volcanic flake and marine shell in a 200 m northeast/southwest by 15 m northwest/southeast area on the 30-foot contour (James et al. 1992a). Ogden recommended testing to determine National Register status prior to any ground-disturbing activities within the site. In 1993 Gallegos and Associates (Gallegos) conducted a surface survey of the site and excavated 26 STPs and three 1 x 1m units (Strudwick et al. 1994). They discovered an extensive cultural deposit extending to depths of 100 cm with two apparent loci. Gallegos recovered 85 artifacts (71 pieces of chipped stone, four modified flakes, three unidentified groundstone fragments, two milling stone fragments, a mano, a biface fragment, a Cottonwood projectile point, a shell bead, and historic debris), more than 5,000 grams (11 pounds) of shellfish remains (dominated by rocky intertidal species such as: *Protothaca stamina*, *Tegula* sp., and *Mytilus* sp.), 65 grams (2.3 ounces) of bone, two fish otoliths, fire-affected rock, and charcoal (Strudwick et al. 1994). Based on the distribution of the collected artifacts, Gallegos increased the size of the site to 400 m north/south by 100 m east/west and also noted that the archaeological remains were concentrated within two loci. Based on the depth and apparent integrity of the site and its potential ability to answer local and regional research questions, Gallegos recommended that the site is potentially eligible for listing in the National Register (Strudwick et al., 1994). However, Gallegos did not receive concurrence from the SHPO on the National Register status. As the site was not within the APE for the project at the time of the surveys of the alignments, neither G and A nor LSA visited this site (G and A 2003; Fulton et al. 2005).
- **CA-SDI-13325** was originally recorded by Ogden (James et al. 1992b) as an extensive 500 m by 1,100 m occupation site containing marine shell fragments and lithic artifacts. On the basis of surface manifestations, Ogden (Glenn and Crawford 1994) determined that the site had a high potential as being eligible for listing in the National Register. However, this recommendation was not forwarded to the SHPO for concurrence. The site was tested by Byrd et al. (1995) by placing

53 STPs, 7 1 x 1 m units and 4 backhoe trenches. Based on the testing, Byrd et al. (1995) reduced the site dimension to 400 m by 300 m. The new site dimensions contained two loci of concentrated artifacts and shell remains with a lighter concentration of artifacts and marine shell in other areas of the mapped site. Loci A, located in the northwest portion of the site, measured 150 x 100 m in size and extended to depths of 90 cm, with the upper 50 cm being disturbed by agricultural activities. Loci B is located in the southeast portion of the site and extended to depths of 50 cm, with all of this being in disturbed sediments by agricultural activities. Byrd et al. (1995) submitted samples of carbon and shell for radiometric dating and determined that this site was occupied as early as 3,000 years before the present. In 1998 during monitoring for geotechnical borings associated with the Foothill-South corridor, G and A observed dark soil and shell fragments (*Protothaca staminea*) in Auger 1 at a depth of between 2.74 and 2.89 m below the surface near the southwest corner of the site (Hale 1998). They could not determine whether this was a continuous deposit or a discrete component of occupation; however, they prepared a site record update expanding the boundaries of CA-SDI-13325 into the area of the find (Hale 1998). LSA observed a large scatter of marine shell, numerous pieces of lithic debitage, cores, and scrapers, as well as one complete metate during its survey (Fulton et al. 2005).

- **CA-SDI-17544** was discovered during surveys of the SOCTIIP alignment within Camp Pendleton (Fulton et al. 2005), and was recorded by Fulton, Smith, and Roberts (2005a). It is a multicomponent site consisting of an expansive prehistoric artifact scatter and post-1945 structural remains and associated trash. The prehistoric component consists of flakes, cores, expedient flaked stone tools, and groundstone scattered within an area measuring 480 m northeast/southwest by 240 m northwest/southeast at an elevation of 70–120 ft. The historic component contains domestic refuse (cans, bottles, tableware, etc.) along with one concrete slab foundation and a trailer body.
- **The San Mateo Archaeological District (SMAD)** is located in the southwestern portion of the project and has been evaluated as eligible for listing in the National Register. The district includes six sites: CA-ORA-22/CA-SDI-13071, CA-SDI-4282, CA-SDI-4535, CA-SDI-8435, CA-SDI-11,703, and CA-SDI-11,929. The district is eligible under criteria A (contribution to broad and specific patterns of Juaneño history) and D (potential to address issues regarding the prehistory of coastal southern California). CA-ORA-22/SDI-13071 has been tested by Romani (1997), Strudwick and Gallegos (1994), Cook and White (1977), Welch (1975a), and ARI (1973). The site is considered the ethnohistoric Juaneño village of *Panhe*, based on ethnographic data gathered by Kroeber (1925) and Harrington (1934:61) and on the recovery of two glass beads (Romani 1997). Over 100 *Panhe* Juaneños were baptized at Mission San Juan Capistrano before 1800.

Site CA-SDI-4282 was tested with shovel test pits (STPs) by Welch (1975a). The adequacy of the study is in question. Site CA-SDI-8435 was tested by Hines and Rivers (1991) and recommended eligible. Sites CA-SDI-4282, CA-SDI-11703, and CA-SDI-11929 are included within the District, but have not been individually evaluated based on a preliminary review of the records.

Recommendations have been made to expand the district boundary to include CA-SDI-13324 and CA-ORA-13325, given linkage through late Holocene littoral adaptations (Byrd 1998). Reddy et al. (1996) tested the area in between sites CA-SDI-13324 and CA-SDI-13325. Strudwick et al. (1994) tested CA-SDI-13324, and concluded that it is a Late Prehistoric site associated with CA-SDI-13325. Reddy et al. (1996) and Byrd et al. (1995) evaluated site CA-SDI-13,325. Byrd concluded that the site is a large Late Archaic site and recommended it eligible for listing in the National Register. Nearby within the same landform, site CA-SDI-13,323/H was tested by Strudwick et al. (1994) and was recommended not eligible for the National Register.

- **30-100360** is an isolated chalcedony core fragment, possibly utilized. It was found during the LSA survey of the Camp Pendleton portion of the project.
- **30-100364** consists of eight fragments of a single metate broken and displaced by road grading and a single igneous flake. It was found during the LSA survey of the Conservancy portion of the project.
- **30-100366** consists of one igneous secondary flake and one igneous tertiary flake located approximately five m apart. It was found during the LSA survey of the Conservancy portion of the project.
- **30-100367** is an igneous secondary flake. It was found during the LSA survey of the Conservancy portion of the project.
- **30-100368** is an igneous edge modified flake. It was found during the LSA survey of the Conservancy portion of the project.
- **37-026821** is an abandoned well and consists of three concrete standpipes and a square metal box that probably enclosed the well head and pump. A large redwood log is located just south of the well. It was found during the LSA survey of the Camp Pendleton portion of the project and was recorded by Fulton, Smith, and Roberts (2005b)
- **37-026827** is a military training area containing bleachers, a trash scatter, and a rocket can as well as abundant cartridge casings. It is located on a bench above and to the west of San Mateo Creek. The bleachers are positioned with a view of the training area below. It occupies an area measuring 168 m northeast/southwest by 53 m northwest/southeast at an elevation of 230–270 ft. It was found during the LSA survey of the Camp Pendleton portion of the project and was recorded by McLean, et al. (2005)
- **37-026829** is two dark, fine-grained igneous flakes located approximately five m apart. They were found during the survey of the Camp Pendleton area.
- **37-026830** is an isolated core tool of a dark, fine-grained igneous material. It was found during the survey of the Camp Pendleton area.
- **37-026831** is an isolated sandstone metate exhibiting minimal use and a dark, fine-grained igneous core. It was found during the survey of the Camp Pendleton area.
- **37-026832** is an isolated sandstone metate exhibiting minimal wear. It was found during the survey of the Camp Pendleton area.
- **37-026833** is an isolated metavolcanic core found in a firebreak; however, there is still a moderate growth of grass that obscures at least 70 percent of the ground surface, and additional artifacts may be present. It was found during the survey of the Camp Pendleton area.
- **SOCTIIP-2001-ISO-1** is an isolated multidirectional core composed of rhyolite. It was found by G and A during its survey of the SOCTIIP alignments.

SITE DESCRIPTIONS FOR ALL ARCHAEOLOGICAL RESOURCES ENCOUNTERED BY LSA OUTSIDE THE APE OF THE MGA

A total of 9 sites and 10 isolates were identified by LSA during surveys associated with preparation of this ASR but are currently outside the APE of the preferred MGA. Some of these were encountered while accessing the survey area and some were within survey areas for alignments that are no longer being considered. The locations of these sites within Camp Pendleton are depicted on Map 4 and within the Conservancy survey area on Map 5. The site records and any updates are attached in Chapter XI, Site Records, at the end of this ASR. The site history for each is discussed below.

- **CA-ORA-1021** was originally recorded in 1983 and described as a small lithic scatter (10 x 15 m) containing flakes and one scraper plane (Cottrell et al. 1983b). A 1988 site update (Hatheway and McKenna 1988m) greatly enlarged the site to 100 x 100 m and recorded two metates, four manos, three hammerstones, three flakes, eight pieces of debitage, and eight cores/tools. The LSA survey of the Conservancy portion of the project found the site to be much like the 1983 record, as several flakes were observed in a localized area, and no groundstone was noted.
- **CA-ORA-1023/1024** was originally recorded as two distinct lithic scatters located in the canyon bottom of an unnamed tributary drainage of Cristianitos Creek, with material only visible in the disturbed roadcut that parallels the north side of the drainage (Murray and Demcak 1983). In 1988, the two sites were combined and the site boundaries enlarged to include the ridge north of the drainage as well as the cattle trough (Hatheway and McKenna 1988n). During the LSA survey of the Conservancy portion of the project, several flakes of volcanic material were observed on the gently sloping ridgeline portion of the site. No prehistoric material was observed in the canyon bottom, most likely due to deposition since the site was recorded. The cattle trough was still extant.
- **CA-ORA-1180** was originally recorded by Hatheway and McKenna (1988o) as a lithic and groundstone scatter containing four flakes/cores/tools, two pieces of debitage, and four manos. During the LSA survey of the Conservancy portion of the project, only a single igneous scraper was observed. It is unknown whether the lack of visible artifacts is due to collection or deposition and other factors since 1988.
- **CA-ORA-1186** was originally recorded by Hatheway and McKenna (1988p) as a lithic and groundstone artifact scatter containing one schist metate, one granite mano, one basalt flake, one quartz flake, and one broken metate. This site was not relocated during LSA's survey of the Conservancy portion of the SOCTIIP.
- **CA-ORA-1187** was originally recorded by Hatheway and McKenna (1988q) as a lithic scatter containing seven flaked tools/cores, one granite mano, four fire-affected rocks, and one hammerstone in a 100 m east/west by 40 m north/south area on the 500-foot contour. This site was not relocated during LSA's survey of the Conservancy portion of the SOCTIIP.
- **CA-ORA-1188** was originally recorded by Hatheway and McKenna (1988r) as a lithic scatter containing one mano, one unifacial flaked core/tool, and one flake in a 10 m northwest/southeast by 5 m southeast/southwest area on the 500-foot contour. It was found along a trail with brush on either side. During the LSA survey of the Conservancy portion of the SOCTIIP, a single utilized flake was identified.

- **CA-ORA-1189** was originally recorded by Hatheway and McKenna (1988s) as a lithic scatter containing two manos and one flaked core/tool. This site was not relocated during LSA's survey of the Conservancy portion of the SOCTIIP.
- **CA-ORA-1640** was recorded by Fulton and Smith (2005) as four flakes in a 166 m east/west by 42 m north/south area on a broad ridge. Dense brush and grass made for poor ground visibility, and other artifacts are probably present. It was found during LSA's survey of the Conservancy portion of the SOCTIIP.
- **CA-SDI-17545** was recorded by Fulton, Smith, and Roberts (2005c). It is a lithic scatter containing more than 50 fine-grained metavolcanic flakes and several cores. The site is located along a dirt road and extends west from Cristianitos Road for approximately 190 m. Cultural material was only observed within the deflated road bed. This site was discovered by LSA while accessing the SOCTIIP within Camp Pendleton.
- **30-100091** is a felsite core. This isolate was not relocated by LSA during the survey of Conservancy portion of the SOCTIIP.
- **30-100092** is a large andesite flake. This isolate was not relocated by LSA during the survey of Conservancy portion of the SOCTIIP.
- **30-100098** is a basalt flake/core tool. This isolate was not relocated by LSA during the survey of Conservancy portion of the SOCTIIP.
- **30-100365** is a metavolcanic core. It was found during the LSA survey of the Conservancy portion of the SOCTIIP.
- **30-100361** is a scraper made of a rhyolitic material. It was found during the LSA survey of the Conservancy portion of the SOCTIIP.
- **30-100362** is a multidirectional core made of a dark, fine grained igneous material. It was found during the LSA survey of the Conservancy portion of the SOCTIIP.
- **30-100363** is an unshaped, weathered mortar. It was found during the LSA survey of the Conservancy portion of the SOCTIIP.
- **37-026828** is an isolated core composed of a fine-grained igneous material. It was found by LSA while accessing the SOCTIIP survey area within Camp Pendleton.
- **37-026834** is a single isolated meta-volcanic flake. Dense brush in the vicinity may have obscured additional artifacts. It was found by LSA while accessing the SOCTIIP survey area within Camp Pendleton.
- **37-026835** is an isolated meta-volcanic flake. It was found by LSA while accessing the SOCTIIP survey area within Camp Pendleton.

NATIONAL REGISTER STATUS

Prior to any project impacts to any resources identified within the project ADI or buffer area, the National Register status of all resources needs to be determined. A total of 35 archaeological sites have been identified within the Project ADI and 300-foot buffer area. Research performed by LSA during preparation of this ASR indicates the following:

- Six of these (CA-SDI-4282, -4535, -8435, -11703, -11929, and CA-ORA-22/CA-SDI-13071) are elements of SMAD, which has been determined eligible for the National Register.
- Two (CA-ORA-1559 and CA-ORA-1560) have been determined eligible for the National Register and received SHPO concurrence (SHPO 2004).
- Four sites (CA-ORA-653, CA-ORA-657, CA-ORA-658, and CA-ORA-1561) are not eligible for the National Register and have received concurrence from the SHPO.
- Two sites (CA-ORA-1168, and CA-ORA-1175) have been destroyed by development. Prior to being destroyed, they had been recommended as not eligible for the National Register by various consultants following their subsurface testing programs; however, there is no evidence that these recommendations were forwarded to the SHPO for concurrence.
- Four sites (CA-ORA-921/1127, CA-SDI-1074, CA-SDI-13324, and CA-SDI-13325) have been recommended as eligible for the National Register by various consultants following their subsurface testing programs; however, there is no evidence that these recommendations were forwarded to the SHPO for concurrence.
- Eight sites (CA-ORA-362, CA-ORA-363, CA-ORA-913, CA-ORA-914, CA-ORA-915, CA-ORA-916, CA-ORA-920, and CA-ORA-1106) have been recommended as ineligible for the National Register by various consultants following their subsurface testing programs; however, there is no evidence that these recommendations were forwarded to the SHPO for concurrence.
- Nine sites (CA-ORA-912, CA-ORA-917, CA-ORA-1028, CA-SDI-1075, CA-SDI-4412, CA-SDI-6692, CA-SDI-17544, 37-026821, and 37-026827) have not been evaluated for listing on the National Register.

A visual depiction of each site and its National Register status is depicted on Map 4. Sites that have been recommended as eligible/not eligible for the National Register, but have not received concurrence from the SHPO, will need to be reevaluated through a review of the excavation work by others. If the previous work is deemed adequate, it will be forwarded to SHPO for its concurrence. If not adequate, additional Phase II excavation will need to occur before forwarding a recommendation of eligibility to the SHPO for its concurrence. Sites that have not been evaluated for listing on the National Register will need to be subjected to a Phase II testing program. Based on the results of testing, LSA will prepare eligibility recommendations and forward to the FHWA. The FHWA will make determinations of eligibility and send them to SHPO for concurrence.

While isolates are not generally eligible for listing on the National Register, their status as isolates should be confirmed. Due to the dense vegetation in the areas where many of the isolates were found, it is possible that they represent the only visible portions of sites that are otherwise obscured. Their status as isolates should be confirmed through an extended Phase I investigation. If extended Phase I investigations indicate that intact cultural deposits are present and the isolates are indeed elements of a site, a Phase II testing program will need to be implemented to determine the eligibility of the resource. Known isolates include: 30-10360, 30-10364, 30-100366, 30-100367, 30-100368, 37-026829, 37-026830, 37-026831, 37-026832, 37-026833, and SOCTIIP-2001-ISO-1.

Other Resources

Six sites (CA-ORA-653, CA-ORA-657, CA-ORA-658, CA-ORA-916, CA-ORA-1561, and CA-SDI-6692) that are within the MGA or 300-foot buffer could not be relocated during the most recent survey that occurred in the vicinity of their mapped location. A number of probable reasons include poor ground visibility during the survey, collection of all surface artifacts by previous survey crews or the general public, or the site was only a limited use site to begin with, and the few artifacts that were present could just not be relocated.

Six extant historic structures and objects (37-026809, 37-026820, 37-026823, 37-026824, 37-026825, and 37-026826) are within the MGA or 300-foot buffer. The eligibility status of these can be determined through archival research. They will be discussed and evaluated in the HRER.

Unidentified Cultural Materials

If previously unidentified cultural materials are unearthed during construction, it is Caltrans' policy that work be halted in that area until a qualified archaeologist can assess the significance of the find. Additional archaeological survey will be needed if project limits are extended beyond the present survey limits.

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CHAPTER IX: MAPS



LSA

LEGEND

 Modified Green Alternative (09/2005)



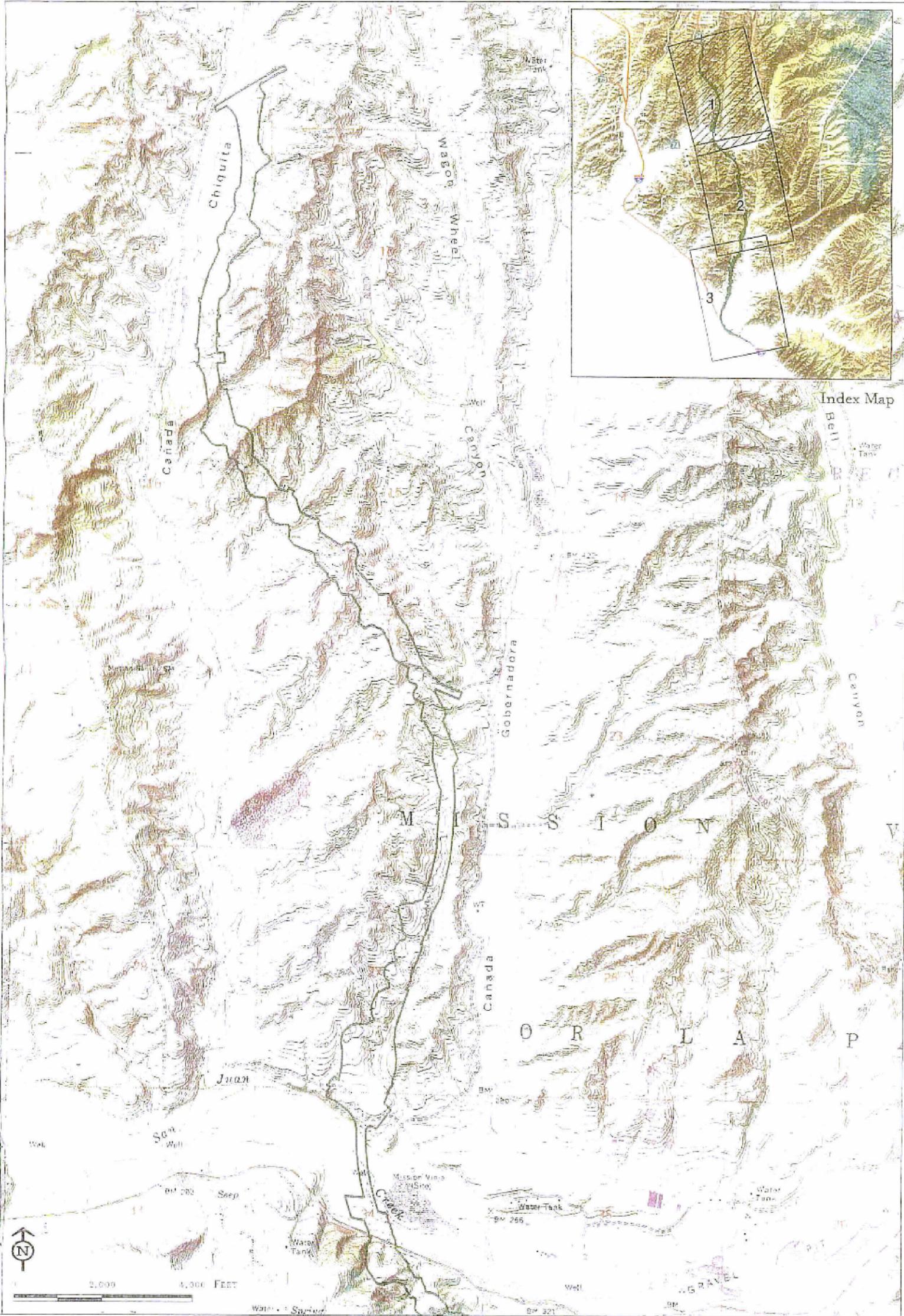
0 2 4 8 Miles

MAP 1

South Orange County Transportation
Infrastructure Improvement Project (SOCTIIP)

Project Vicinity

SOURCE: THOMAS BROS. 2004, LSA 2005
I:\PND\130\GIS\Vicinity.mxd (09/12/05)

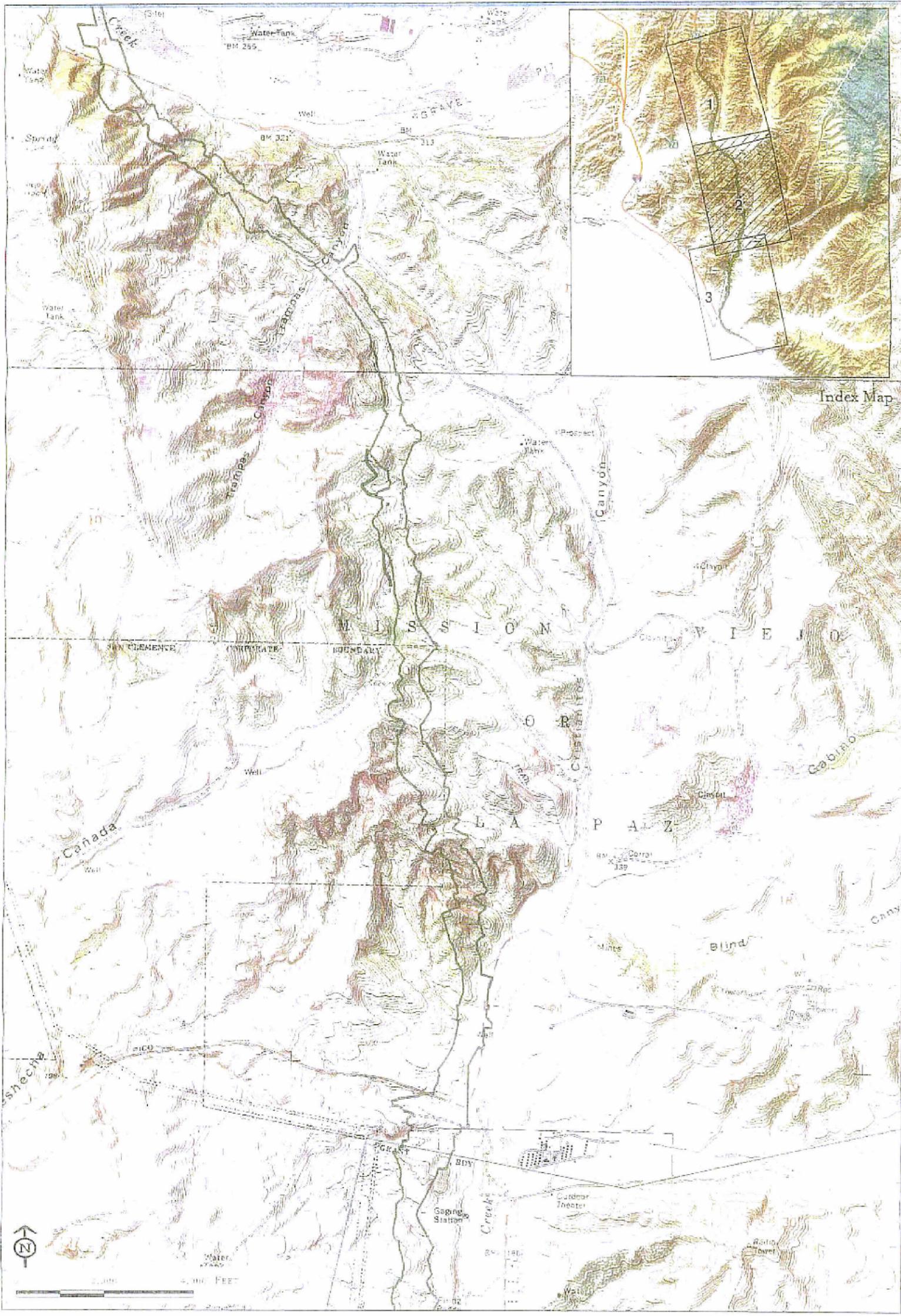


LSA

Map 2a

Modified Green Alternative (08/2005)

South Orange County Transportation Infrastructure Improvement Project (SOCTIP)

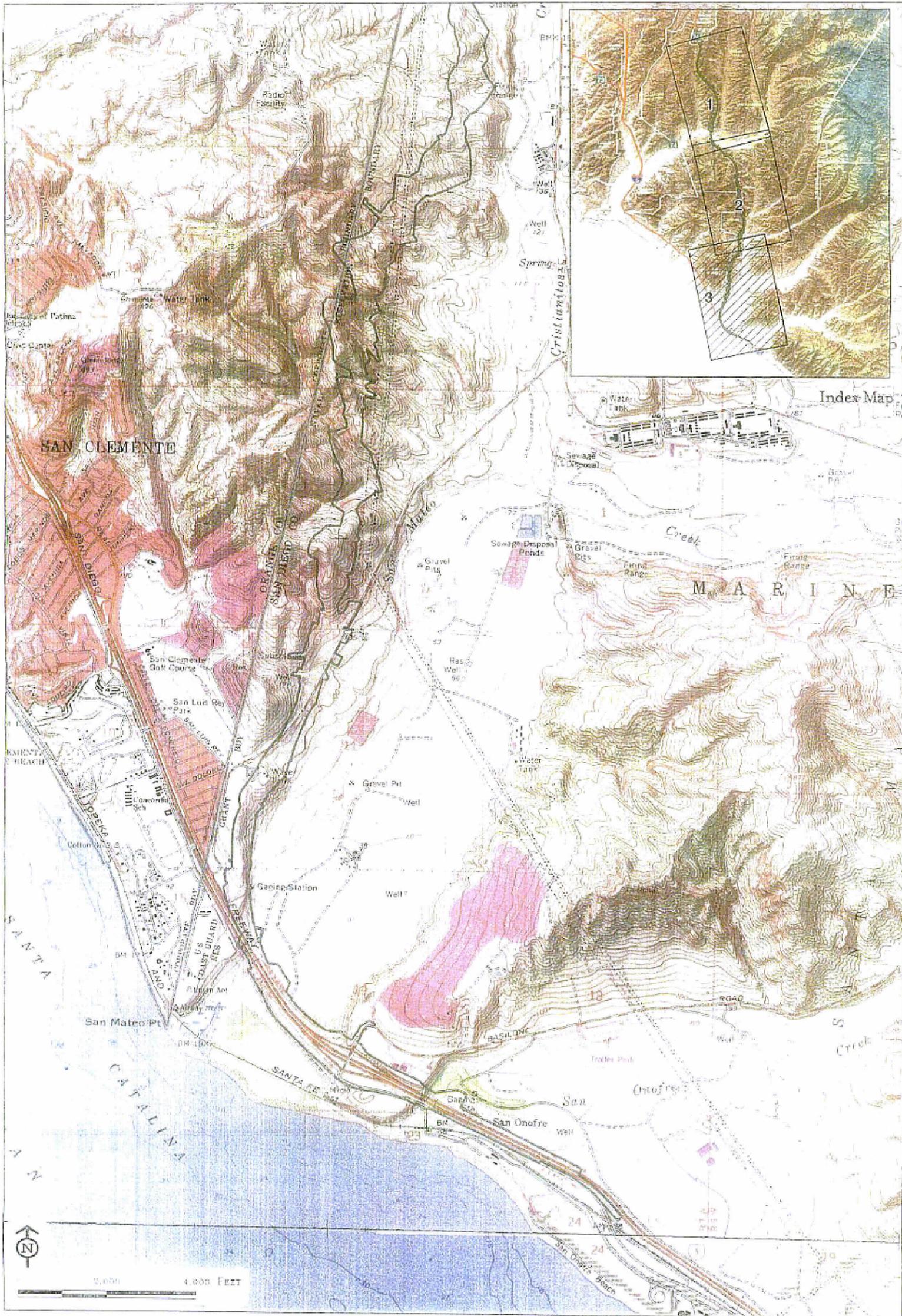


LSA

Map 2a

 Modjesco Green Alternative (09/2005)

South Orange County Transportation
Infrastructure Improvement Project (SOCTIIP)



LSA

Map 2c

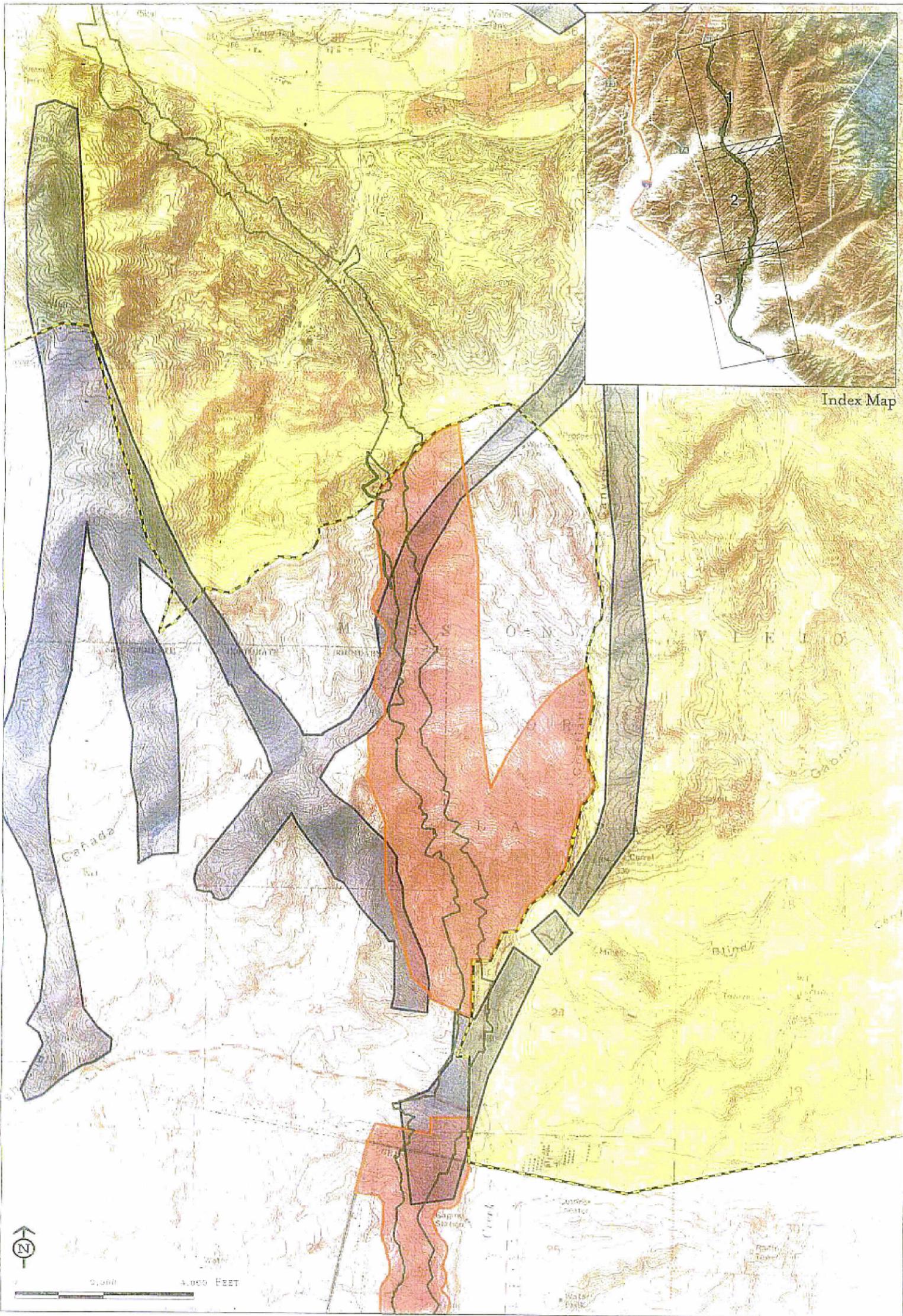
Modified Green Alternative (09/2005)

South Orange County Transportation
Infrastructure Improvement Project (SOTIP)

SOURCE: USGS 1:25,000 Land Use/cover map (88) San Clemente, 75, PA1 LSA, 11/2004.

Project Location Map

Project Location Map



Index Map

LSA

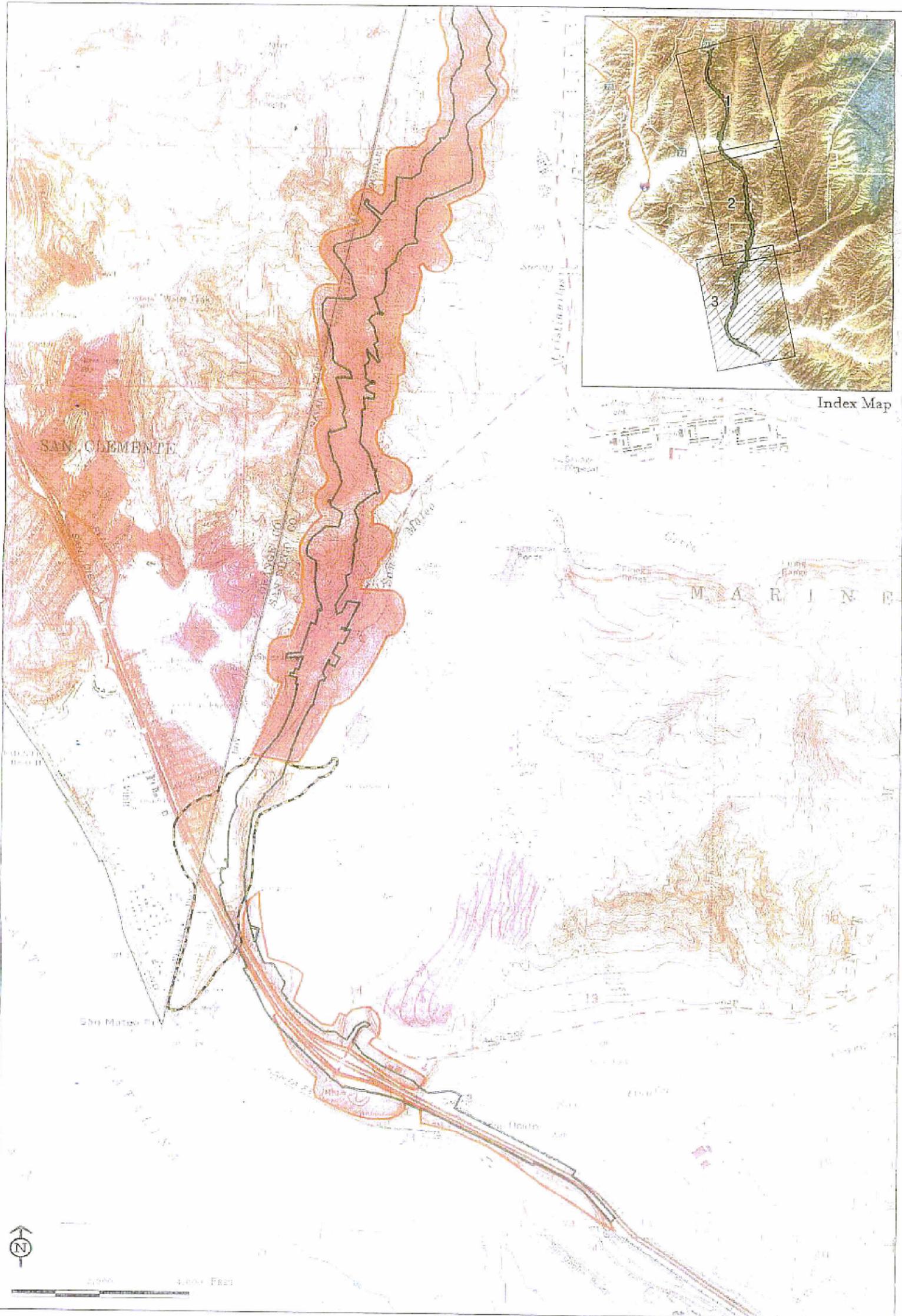
- Modified Green Alternative (09/2015)
- LSA Survey Area
- Greenwood Survey Area (G and A, 2003)
- ARMC Survey Area (Demers, 2001)
- San Mateo Archaeological District (Surveyed and tested by numerous archaeologists)

Map 36

South Orange County Transportation Infrastructure Improvement Project (SOCTIIP)

Source: 1:50,000 Scale Topographic Maps
 © 1987, 1988, 1994, 2000, 2002, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025
 Prepared by: [Company Name], Map No. [Number]

Survey Coverage Map



LSA

- Modified Green Alternative (09/2005)
- LSA Survey Area
- Greenwood Survey Area (G and A 2012)
- ARMC Survey Area (Demcak 2000)
- San Mateo Archaeological District
(Surveyed and tested by numerous archaeologists)

Map 3e

South Orange County Transportation
Infrastructure Improvement Project (SOCTIIP)

Survey Area Section 10 Standards
 12/15/11 UNUS 125-000/Amelia Oshorn/John C. 185, San Clemente 1256, CA, USA, 1/12/2014
 Paul Dyer Survey, Map no. 10012034

Survey Coverage Map

CHAPTER X: OTHER FIGURES



View to southeast showing typical dense growth of brush within Donna O'Neill Conservancy.



Typical view showing dense growth of brush and grass within O'Neill Conservancy. Note some ground visibility in old road area.

LSA

South Orange County
Transportation Infrastructure Improvement Project (SOGTIP)
Project Photos
Donna O'Neill Conservancy



View to north along centerline of MGA showing dense growth of grass and brush, at northern end of Camp Pendleton.



View to south along centerline of MGA showing dense growth of brush typical to the upland areas through Camp Pendleton.

LSA

South Orange County
Transportation Infrastructure Improvement Project (SOCTIIP)
Project Photos
Camp Pendleton

CHAPTER XI: SITE RECORDS